VOL. XVI, NO. 12 CHICAGO, SEPTEMBER 16, 1909 $3.00 PER YEAR

MOTOR AGE

MOTORING THROUGH HISTORICAL OHIO

TOLEDO, O., Sept. 13—"Of all the questions which have interested and divided the people of the United States," says Albert Bushnell Hart, professor of history in Harvard, in his commentary on Professor Wilbur H. Siebert's 'The Underground Railroad,' "none since the foundation of the federal union has been so important, so far reaching, and so long contested as slavery."

The Underground Railroad

What then, of more interest to the tourist of this present day than a jog over some of the spots made famous during the awful agitation of this momentous question—some of the spots particularly bright, historically, because of their direct connection with the underground railroad?

Continuing his introduction Dr. Hart says: "The underground railroad was simply a form of combined defiance of national laws, on the ground that those laws were unjust and oppressive. It was the unconstitutional but logical refusal of several thousand people to acknowledge that they owed any regard to slavery or were bound to look on fleeing bondmen as the property of the slaveholders, no matter how the laws read," or as Dr. Siebert himself says: "The designation—the underground railroad—was generally accepted as an apt title for a mysterious means of transporting fugitives to Canada."

WOODS THAT HID PATTERSON CAVE

By Howard L. Spohn

Ohio and especially the northern portion of it, as well as the Ohio river banks played a most mighty prominent part in this unconstitutional traffic and from one boundary of the state to another can be found numerous relics, sites and even buildings that marked the scenes of close escapes, exciting chases and even bloody as well as legal combats between slave owners from the south and anti-slavery abolitionists of the north.

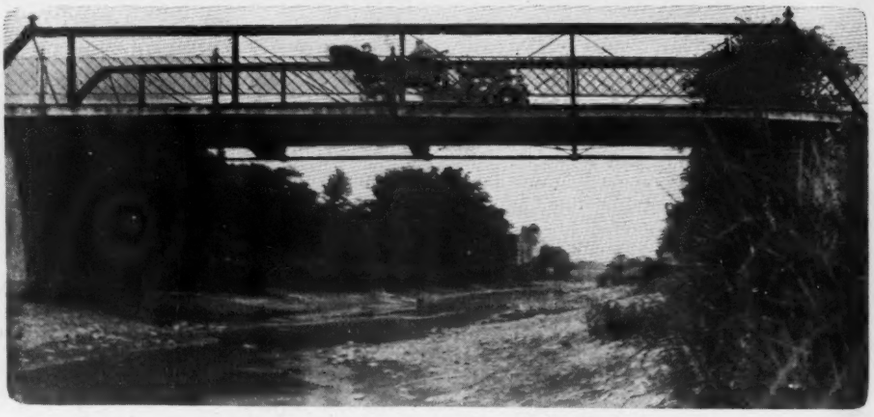
Seeking Historical Data

Little wonder then that after several days of data compilation, the writer and several other vacation seekers, all true motorists, should set out from Toledo for a tour of part of Ohio on the search for underground railway stories and incidental photographs with which to record the historic spots.

Big Gus Uhl, but lately returned from the Glidden tour entry, had promised his Jewel touring car and his own services several weeks prior, so at 4 o'clock on a deliciously hot summer morning the start was made from the Standard garage, which, peculiarly enough, marks the site of a most important underground station.

PICTURESQUE SCENERY ENCOUNTERED NEAR OBERLIN BY MOTORING HISTORICAL STUDENTS

It was here that stood an old warehouse along the banks of the Miami and Erie canal when that waterway flowed squarely across the business district of Toledo. Common repute has this as one of the stations. Leaving as we did early that morning, it really wasn't difficult to imagine ourselves on a mission of freedom—and when a few miles out we heard distinctly the hoot of an owl there was something almost uncanny in the sound and surroundings, for be it known, the hoot of an owl was one of the most frequently used signals by the fleeing blacks when in distress or upon approaching a haven of rest.



BRIDGE OVER THE CANAL NEAR MAUMEE

Landmarks at Maumee

Following as nearly as we could the line of the old Cincinnati-Toledo waterway, we soon reached Maumee, which marks the most northerly portion of the tow path used as a rule by the slaves. From this point they usually took to the heavy-timbered lands to the west. Here still stands a portion of an old mill—now a paper mill—which sheltered many a slave; and upon the spot where stood an old wooden bridge, much used by the underground railroad, now stands a fine steel structure. And underneath is almost an arid tract of canal bottom, where once flowed a real stream.

One of the land marks of the trade in Maumee stands on the old state road just beyond the famous Dudley's battle ground like a grim sentinel. It is now a road house and café.

Surrounded as is this old building, by the scores of nationally famous historical spots such as Fort Miami, Turkey Fort Rock, Fort Meigs and the battle ground of Fallen Timbers it is not strange that it is almost forgotten by those tourists of this tradition-laden territory, who seek to be regaled with tales of gore and sacrifice that make our heroes of to-day almost unworthy of the name. But were the walls of this old building to burst forth into speech, full many a tale might be told of suffering and hardship, of joy and gladness, not lesser in degree than those tales of the decades before when the red man rather than the black was the casus belli.

It used to be the entertainment of hours to listen to the tales of Richard Mott and James M. Ashley of Toledo who perhaps most frequently used this old Maumee station in picking up fugitives from the canal and from the old Ohio state road trail, to give them shelter before their last few miles through Ohio woods over the Michigan border and into Canada. Tradition has it that in the hey-dey of this old place the cellar was a mass of secret walls and panels and that even caves and sub cellars had been constructed. But in remodeling, these hiding places were removed or covered up so no sign of them now remains.

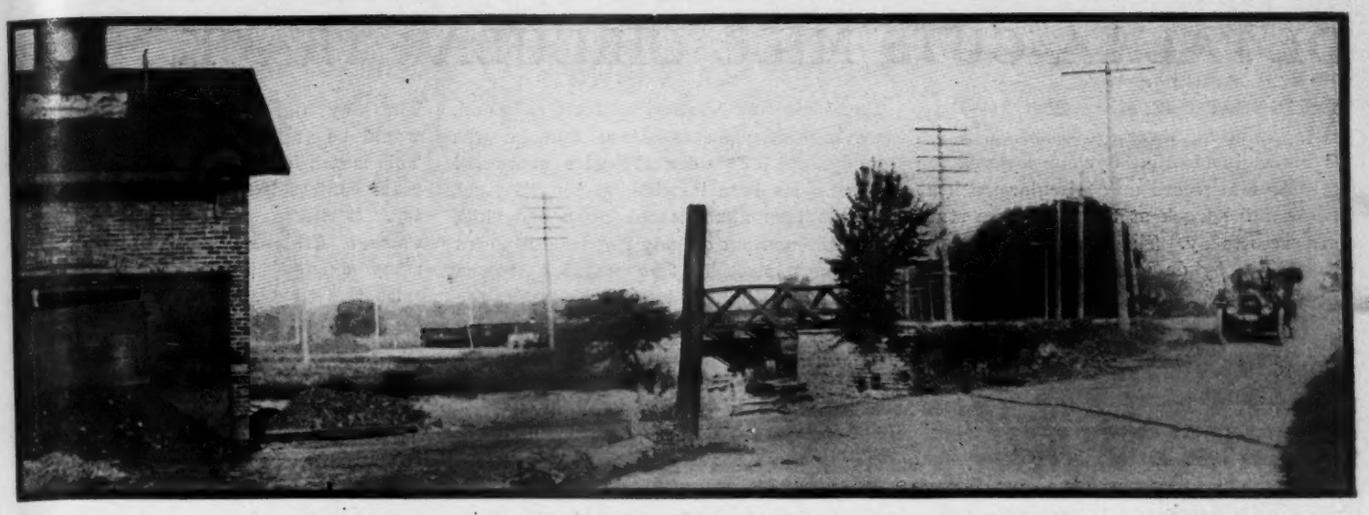
OLD ABANDONED RAILROAD BED

Sights at Perrysburg

Retracing our tracks we crossed the muddy Maumee and gazed for a moment on the most notorious station in Perrysburg—now the site of the Perrysburg Journal. Following the old state road and parts of the historic Hull's trail, we soon were within snapshot distance of the ancient Davis barn—repatched and repaired, but still a relic of the past—wherein is said to have taken place a real bloody struggle where three fugitives were tracked by hounds. This old barn is just on the outskirts of Stuartsville—as it was known in those days, now named Mortimer—and is really preserved for its history more than for any other reason.

It is likely that this was used as a station because of its distance beyond the limits of Findlay proper and because it made a comfortable trip from Kenton and Arlington, south of Findlay and also on the state road, previously and probably originally laid out by General Hull when he established the memorable Hull's trail on his progress into Detroit.

The story as related in and around Findlay is that in the later days of the traffic after the irate slave owners were given



OLD PAPER MILL AND CANAL CROSSING NEAR MAUMEE—ONE OF THE HISTORIC SPOTS

DAVIS BARN LOCATED NEAR STUARTSVILLE

to tracking the runaways with hounds a certain Kentuckian and his son ran on to three of his slaves early one morning in this barn. His dogs led them into the barn but their growls served to apprise the sleeping blacks of their danger and grasping clubs and handy pitchforks, they crouched close to the hole in the loft until both men were up. Then before their pursuers were aware of it they were attacked on three sides. In the struggle, both white men were beaten into insensibility and relieved of their guns which in turn were used to kill the hounds that had been left below.

By the time the pursuers had recovered their senses, the negroes had—of course mysteriously—disappeared and the residents of the nearby house were of course at a loss to know whence came the negroes or where they went. An account of this affair is said to have been chronicled in some of the publications written a few decades since on the underground railroad.

Old Mad River Railroad

From Findlay we cut across country traversing the line of the old Mad River railroad—now a part of the Big Four—which was one of the first surface lines ever used to transport the negroes. Here, too, we crossed the former right of way of the Sandusky, Mansfield and Newark, now the B. & O., stopping long enough to get a picture of an abandoned portion of the original road bed. This also was a prominent route in the early '50s.

South along these lines the old routes led you through Upper Sandusky, Kenton, and finally down into Bellefontaine and Logan county which was one of the noted spots of Ohio because of the activities of a lot of Covenanters.

Writing to Professor Seibert in 1894 J. M. Forsyth, of Northwood, says: "In Northwood there is a denomination known as Covenanters; among them the runaways were safe. Isaac Patterson has a cave on his place where the fugitives were secreted and fed 2 or 3 weeks at a time until the hunt for them was over. Then friends, as hunters, in covered wagons would take them to Sandusky. The highest number taken at one time was seven."

PERRYSVILLE JOURNAL OFFICE

Here we were fortunate enough to get a photograph of the wood that sheltered the Patterson cave, long since filled in. Imagining ourselves to be conveying a band of fugitives we turned north from this spot bound for Sandusky and freedom. Mile after mile of historic ground we covered, finally drawing up in Oberlin,

Many Historic Points

Volumes upon volumes could be written of this territory and its connection with the underground railroad, but just a few lines of the present connections with the past. Here stands the Sloane house named after the family of the Hon. Rush R. Sloane, who in 1854 was fined $3,000 for the dismissal without proper authority of seven fugitives from their captors in Sandusky. Mr. Sloane is responsible for the following anecdote relative to the naming of the road: "In the year 1831, a fugitive named Tice Davids came over the line and lived just back of Sandusky. He had come direct from Ripley, O., where he crossed the Ohio river. When he was running away, his master, a Kentuckian, was in close pursuit and pressing him so hard that when the Ohio river was reached he had no alternative but to jump in and swim across. It took his master some time to secure a skiff, in which he and his aid followed the swimming fugitive, however, the master could not find him. No one had seen him; and after a long search the disappointed slave-master went into Ripley, and when inquired of as to what had become of his slave, said he thought 'the nigger must have gone off on an underground road.' The story was repeated with a good deal of amusement, and this incident gave the name to the line. First the 'underground road,' afterwards 'underground railroad.'"

DE PALMA CUTS MILE CIRCULAR TRACK MARK

MINNEAPOLIS, Minn., Sept. 11—Driving as he never drove before, Ralph de Palma in his Fiat Cyclone lowered the world's mile record on a circular track at the Hamline track at the Minnesota state fair races today. The record of :51 made a year ago by de Palma was clipped for ⅕ second, de Palma making it in :50⅘ twice during the afternoon. Not content with this showing, he also lowered the world's record, held by himself, for 3 miles, bringing it down from 2:42 to 2:39 and later in the day to 2:38⅘. More honors also were his in that he set a new mark for 10 miles against time, doing 8:49⅗. The track was in excellent condition and de Palma was at his best in his Fiat. The only other racing driver out of the five engaged to appear was H. J. Kilpatrick in his 120-horsepower Hotchkiss. Burman, Strang, Chevrolet and Christie, all of whom had agreed to drive, failed to make good.

The crowd of over 40,000 was a record-breaker, according to the state fair management. De Palma and Kilpatrick made their first appearance in the 3-mile match race. De Palma was given a hearty reception by the crowd as they got away. He jumped well into the lead and maintained it for a mile and a half, and then on coming into the home stretch on the second mile the spectators were given the treat of seeing the two powerful machines race by the stands almost neck and neck. De Palma was faster on the turns than Kilpatrick and again taking the lead, won handily. Time by miles: First mile, :57; second mile, 1:00; third mile, :54. In the second heat of the 3-mile race two records went. The 3-mile record of 2:42 was lowered to 2:39 and de Palma lowered his world's record of :51 flat for the mile by ⅕ second. The first mile in the second heat was clocked in :56⅕, the second in :52 and the third in :50⅘.

Next among the big events was the time trials against the world's record. Kilpatrick in the Hotchkiss made two attempts but could only make it in :56⅕ and :56. De Palma then warmed up for a mile and, waving his hand as signal that he was ready, got off under the wire at record speed. He held it wide open until right on the turn almost, took up a bad skid, straightened out quickly and tore off down the back stretch. The watches showed :25⅕ at the half and from that point the speed seemed to increase. Making a magnificent turn and holding his wheels close to the fence, the youngster whizzed into the stretch and dashed under the wire ⅕ second to the good. This was the second time he reeled off a mile at this speed and the crowds again went mad with joy. Kilpatrick and de Palma were scheduled for a 10-mile match race, but the Hotchkiss met with a mishap in practice and withdrew. De Palma then said he would make a 10-mile exhibition in an endeavor to lower his own record of 9:11⅘. It was on this exhibition that de Palma seemed to throw caution to the winds and to drive like one possessed. He was timed as follows: First mile, :53⅕; second, :53⅕; third, :52⅘; fourth, :55⅕; fifth, :54⅗; sixth, :52⅖; seventh, :53; eighth, :52; ninth, :51⅘; tenth, :51⅘; total, 8:49⅗. It was in the seventh, eighth and ninth miles that de Palma established his lowest record for the day for 3 miles. The record of 9:11⅘ for the 10 miles was lowered to 8:49⅗.

Summary:

First and second heats, 3-mile match race, free-for-all, flying start—De Palma, Fiat, won; Kilpatrick Hotchkiss, second. Time, 2:54, 2:39.

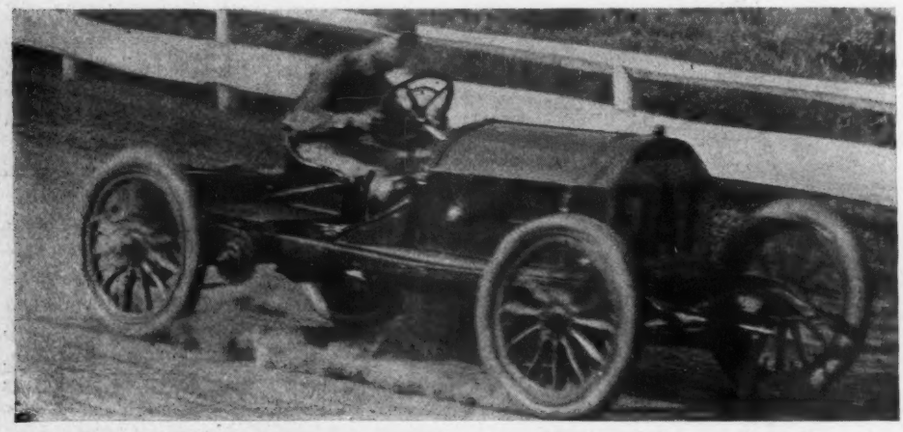
Five-mile stripped chassis, class 6—Johnson, 20-horsepower Hupmobile, won; Ferris, Hupmobile, second. Time, 7:55.

Five-mile, stripped chassis, class 2—J. N. McLane, Buick, won; R. Douglas, Minneapolis, second. Time, 5:41.

Five-mile, stripped chassis, class 4—C. Nyquist, Buick, won; C. Reynolds, Buick, second. Time, 6:21.

Time trials to lower world's record of :51—De Palma, Fiat, time, :50 4-5; Kilpatrick, Hotchkiss, :56, :56 1-5.

Time trial for 10-mile track record—De Palma, Fiat; time, 8:49 3-5.



RALPH DE PALMA CUTTING MILE RECORD IN FIAT CYCLONE

TEAM MATCH FOR CHICAGO

Chicago, Sept. 13.—The second annual reliability team match between the Chicago Automobile Club and the Chicago Athletic Association is scheduled for next Thursday and it looks now as if there would be at least twenty cars on a side. This match is unique in that it is the only team contest between clubs in the country. It first was held last year, when the Chicago Athletic Association won. Not many changes have been made in the rules this time and the contest will be a non-motor stop run with penalties for repairs, replacements or adjustments and for being late at controls. There will be no technical committee examination of the cars at the completion of the match and only club members who are not affiliated in any manner with the motor car trade are eligible to drive. N. H. Van Sicklen is captain of the Chicago Automobile Club team and Charles T. Knisely of the C. A. A., the same two who acted last year. The route laid out covers 150 miles of territory and runs from Chicago to Crown Point and from there to Valparaiso and back. At the present time the C. A. C. has seventeen cars listed to start Thursday and the C. A. A. thirteen.

THREE IN MT. BALDY RACE

Los Angeles, Cal., Sept. 10—The fourth annual Los Angeles-Mt. Baldy road race will be run on the morning of September 19, and for the first time three cars will contest instead of two. The entries are the Apperson Jackrabbit which won the Santa Monica road race, averaging 64.4 miles per hour for the 202 miles; the White steamer with a 40-horsepower engine, and the Pope-Hartford. They will start in the order named, 30 minutes apart. All of the cars have made trial trips and it is a certainty that the old record of 3:38:00 for the 101 miles will be broken. Harris Hanshue will drive the Apperson, J. Seyfried the White, and Bill Ruess the Pope-Hartford. All are experienced drivers. The race is one of the severest run in the world. The first 28 miles will take the cars over a fairly good country road. Then comes the famous Newhall grade, 28 per cent, at the top. There are 15 more miles of country road before reaching the Soledad canyon. Then follows miles and miles of winding in and out through the willows, over a treacherous sandy road, down which a creek runs part of the way. It means a continual shifting of gears getting down into narrow dips and ploughing out again. After miles of this the cars roll into Acton and from there to Palmdale, on the edge of the Mojave desert, good time can be made. The desert road for 21 miles to the foot of North Baldy mountain is badly cut up and sandy in places. The next 9 miles is up a mountain in which there is a rise of 3,000 feet to the finish. A telephone line is stretched to the finish, which is 30 miles from the nearest railroad. The entrants have posted $500 each, the winner taking the pot. The cars

were entered by Leon T. Shettler, F. C. Fenner and William Ruess. Shettler is the owner of the Apperson and donor of the Shettler trophy for which the small cars raced at Santa Monica. Ruess is the Pope-Hartford agent and a well known California sportsman.

READY FOR KANSAS TOUR

Kansas City, Mo., Sept. 13 —The annual tour of the Automobile Club of Kansas City is to start from here next Monday morning, September 20. The indications are that sixty cars will go over the starting line. There are two classes, one for private owners and one for dealers. The dealers are in class A and the members of the club in class B. Each class has its own set of rules. The entry list for class A is to close Wednesday, September 15, and the class B list will hold open until noon of the 18th. At this writing, Monday morning, there are forty-seven contestants entered in the two classes and six non-contestant cars, making a total of fifty-three certain to go. This number, the committee is confident, will be increased to sixty or more before the start of the tour. In class A there are two Ramblers, Royal Tourist, Pennsylvania, Brush, Overland, American Simplex, Mitchell, Reo, Marmon, Velie, Auburn, Jackson, Ohio, De Tamble, Studebaker-E-M-F, Kisselkar, two Moons, Mason, Maxwell, Gleason, two Buicks, Great Western, Cadillac, Knox, two Great Smiths and two Franklins. In class B are a Chalmers-Detroit, Rambler, National, Inter-State, Locomobile, Hupmobile, Premier, Oldsmobile, two Pope-Hartfords and two Franklins. The tour this year is 760 miles in length, divided into 5 running days. The longest day's run is 182 miles, from Junction City, Kas., to Lincoln, Neb. The shortest run is from Lincoln to Omaha, 123 miles.

MASON PLANT MOVING

Waterloo, Ia., Sept. 10—The Mason Automobile Co., of Des Moines, Ia., will move its plant to this city, having purchased the Waterloo motor works, which is a factory 100 by 300 feet and three stories high. The move will be made about October 1 and the plant will be in full operation inside of 30 days. It is expected that the new plant will employ 300 people. The capital stock of the company will be increased to $1,000,000.

FIRE IN METEOR PLANT

Davenport, Ia., Sept. 10—The Meteor Motor Car Co. experienced a disastrous fire last night which completely destroyed the entire factory with the exception of the office building. The company, however, is congratulating itself that all drawings, patterns, jigs and special tools were saved, so that it soon will be in a position to resume the manufacture of its 1910 models.

Philadelphia to Seattle Relay Run Is Arranged

Philadelphia, Pa., Sept. 13—At 30 minutes past noon on Saturday next the first car in the Philadelphia-Seattle motor relay dash, promoted by the Philadelphia Press, will leave the city hall for Harrisburg, the first relay point, where another car will take up President Taft's message to President Chilberg, of the Alaska-Yukon-Pacific exposition, and hurry it on to Altoona, where it will be again transferred and rushed on to Pittsburg. Thirty-two relays, averaging a trifle over 100 miles each, will land the president's missive in Seattle in 11 days 17 hours—according to the schedule. Twenty-five different makes of cars will be represented in the run—four Oldsmobiles, three each of the Buicks and Franklins, two each of the Chalmer-Detroits and Fords and single representatives of the Acme, Maxwell, Autocar, Stearns, American, Haynes, Cadillac, Midland, Pope-Hartford, Regal, Premier, Velie, De Tamble, Reo, Auburn, Mitchell, Thomas Flyer and Studebaker-E-M-F.

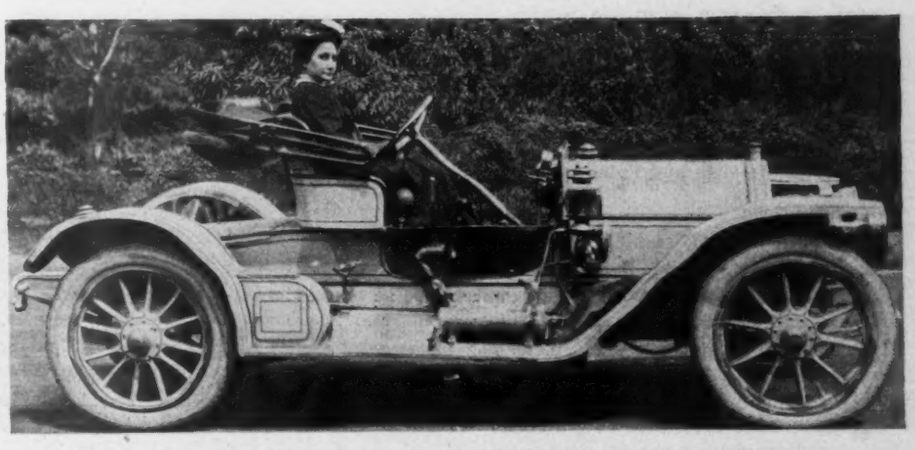
The distance, according to the schedule, is 3427 miles, and the promoters believe that with good weather the time allowed for the journey can be cut to a considerable extent. Starting at 12:30 P. M., on the 18th, it is figured out that the Studebaker-E-M-F should reach Seattle late in the afternoon of the 30th, delivering the presidential message to the exposition authorities in front of the Administration building at about 5:30 P. M. The schedule, as laid out by the promoters, aims to cover the distance from Philadelphia to Seattle in 11 days 17 hours.

DEATH OF E. M. MURPHY

Pontiac, Mich., Sept. 11—Edward M. Murphy, president and general manager of the Oakland Motor Car Co., of Pontiac, died suddenly last Saturday morning. Mr. Murphy felt indisposed the day before and that night suffered a stroke of apoplexy, immediately losing consciousness, and died at 5 o'clock the next morning. Mr. Murphy was 45 years of age and had been actively engaged in the manufacture of vehicles 26 years and at the time of his death was president of the Pontiac Buggy Co. Three years ago he organized the Oakland Motor Car Co., of which he has been the head since the beginning.

ITINERARY OF THE PHILADELPHIA-SEATTLE RELAY

RELAY POINTS	Miles	Cars	Time Hrs
1—Philadelphia to Harrisburg	108	Acme	9
2—Harrisburg to Altoona	130	Maxwell	11
3—Altoona to Pittsburg	110	Autocar	9
4—Pittsburg to Upper Sandusky	202	Stearns	18
5—Upper Sandusky to Fort Wayne	115	Ford	10
6—Fort Wayne to South Bend	100	American	8
7—South Bend to Chicago	103	Haynes	9
8—Chicago to Dixon	104	Cadillac	9
9—Dixon to Mt. Vernon	114	Midland	9
10—Mt. Vernon to Marshalltown	95	Pope-Hartford	8
11—Marshalltown to Carroll	104	Regal	9
12—Carroll to Omaha	106	Premier	8
13—Omaha to Columbus	100	Chalmers-Detroit	8
14—Columbus to Kearney	105	Buick	9
15—Kearney to North Platte	100	Velie	8
16—North Platte to Sidney	123	De Tamble	10
17—Sidney to Cheyenne	105	Oldsmobile	19
18—Cheyenne to Rawlins	180	Oldsmobile	15
19—Rawlins to Green River	134	Oldsmobile	11
20—Green River to Kemerer	90	Oldsmobile	8
21—Kemerer to Soda Springs	100	Reo	8
22—Soda Springs to Blackfoot	90	Ford and Buick	8
23—Blackfoot to Arco	60	Auburn	5
24—Arco to Soldier	132	Mitchell	11
25—Soldier to Boise City	110	Franklin	9
26—Boise City to Weiser	75	Thomas Flyer	6
27—Weiser to Baker City	75	Buick	6
28—Baker City to La Grande	60	White steamer	6
29—La Grande to Pendleton to Walla Walla	122	Franklin	10
30—Walla Walla to North Yakima	125	Franklin	10
31—North Yakima to Easton	80	Chalmers-Detroit	7
32—Easton to Seattle	70	Studebaker-E-M-F	6



MRS. K. R. OTIS, WHO WILL PARTICIPATE IN PHILADELPHIA-SEATTLE RELAY

Published Weekly
The CLASS JOURNAL COMPANY
1200 Michigan Avenue
CHICAGO
New York Office, 239 West 39th Street

MOTOR AGE

Subscription Rates
United States and Mexico, per year, $3.00
Other countries including Canada, $5.00

Entered as Second-Class Matter September 19, 1899 at the Postoffice at Chicago, Illinois, under Act of March 3, 1879

Introducing Larger Tires

TWO years ago a motor car fitted with 40-inch wheels shod with pneumatic tires was viewed with considerable suspicion by many of the manufacturers and the great majority of buyers. The wise ones hinted that wheels could not be made strong enough to withstand the strain of turning corners at speeds common with 36-inch wheels. Notwithstanding this criticism one concern has marketed during the present season a high-powered car with 42-inch wheels and no trouble has resulted from racking of these wheels. For next year one or two of the leading makers of the country have announced the use of larger tires on their big cars. One concern heretofore using nothing larger than 36-inch sizes, specifies 37 inches on one model and 38 inches on another. Before the close of the season more announcements on equipping with larger than 36-inch tires will be made, and it is now safely assured that 36 inches can be no longer considered the maximum tire size, but that this limit has been raised to 40 if not 42 inches.

TIRE sizes are increased for two reasons, namely, their improved riding qualities and to reduce the ultimate tire cost. Although the tire manufacturers united and announced a minimum tire size for certain axle weights, it is a fact that in many cases cars have gone greatly undershod, and as a result may tire difficulties have arisen. The Glidden tour offered a few specific examples of this. In one instance a car weighing empty 3,100 pounds was fitted with 34 by 4-inch tires in rear, and the car was continually having tire troubles. In contrast with this was another car fitted with ½-inch larger sizes on the front wheels and which tires gave no trouble from start to finish. From these and other examples which can be given it is reasonably safe to conclude that a great fraction of tire trouble is due to overload; that is, the car load with passengers is beyond the safety factor of the tire. Increasing tire sizes will do much to overcome this difficulty.

INCREASING wheel diameter from 36 to 38, 40 or 42 inches, will result in an easier riding vehicle because a 40-inch wheel will not drop so far into a road hole as will a 36 or 34-inch size. It is a case of the smaller the wheel diameter the more the drop. Reducing this drop means reducing the wear on the tire itself and also reducing the wear and tear on the car mechanism. The deeper the wheel drops into a hole of given depth, the greater will be the speed of the drop when the bottom is struck, consequently the greater the momentum, and the greater the amount of energy the tire must absorb. The greater the energy the tire must absorb the greater the strain imposed on the tire fabric and the greater the heat generated. Strain and heat are the two great destroying factors of tires and every improvement which reduces these will add to the tire life and reduce tire maintenance.

THE problem of making larger-diameter wheels of sufficient strength to withstand the strain is purely one of construction and can readily be overcome. Wheel makers are at present realizing that larger felloes are essential; many manufacturers are using larger spokes than formerly and increasing the wheel diameter will call for but additional strength in these parts of the wheels as well as in the hub flanges. Increasing the wheel diameter need not necessarily raise the center of gravity of the car because this extra height of the axle is counterbalanced by the use of flatter front springs and the drop frame in the rear.

Horsepower Versus Weight

BECAUSE of the Manufacturers Contest Association and the A. A. A. adopting a minimum weight for cars competing in certain classes of contests, the problem of car horsepower versus car weight has reached an acute situation at the present time. Four years ago a maximum weight clause was the rule, but today the opposite holds control. For some time many manufacturers have gone on the assumption that to get more speed and consequently more power out of a car the only course to follow was that of increasing the bore and stroke of the cylinders, and proportionately increasing the car parts to make their strength adequate to the requirements of the extra power. Performances of certain cars in road races this year have completely upset this situation, and as demonstrated, at the Cobe trophy races and later at the Lowell stock chassis meet, the fastest car is not the one with the biggest cylinders and weighing from 2,800 to 3,200 pounds, but cars with 25 per cent less piston displacement and weighing not more than 2,300 pounds. The 2,300-pound car with a piston displacement of 375 cubic inches has shown greater speed than the car with 500 cubic inches piston displacement but weighing 3,100 pounds. The 125 cubic inches piston displacement, which the big car has over the small one, does not compensate for the 800 pounds additional weight which is has to carry.

THIS new situation brings up the question as to what is the best proportion of piston displacement and weight for a touring car, a runabout or roadster. If road races are of any value whatever by way of obtaining the relative merits of different types of cars, it is safe to assume that the smaller car is the better. The smaller type, based on the figures given, carries 6.13 pounds weight for each cubic inch piston displacement; the larger car carries 7.75 pounds for each cubic inch piston displacement, this making a difference of 1.62 pounds per cubic inch in favor of the smaller type. Many manufacturers have already worked out what is the safety factor as far as weight and power are concerned, and those who have not solved this problem cannot do better than study the cylinder capacities, weights and performances to see approximately where this limit lies. The carrying of needless weight is a terrific expense, and it is foolishness to build a large motor which will be a heavy consumer of gasoline, only to use a great percentage of its energy to care for what might be termed unnecessary weight.

ALTHOUGH some makers have erred on the matter of too much weight, not a few others have erred on the matter of not sufficient weight, and, although some light cars have performed particularly well, a large percentage of the others have failed to withstand the terrific strain that long road races impose on them. This suggests the possibility that even in the light car there is too much motor for the weight and that heavier frames and running gears should be fitted to bring the car up to par in the endurance sphere. The next few years will undoubtedly solve the problem of weight and power proportion and, although minimum weight requirements may be beneficial, it is questionable if the final results of a contest are not sufficient in themselves to determine whether the weight of a car is too small or not. With a minimum weight requirement the development of light weight and small power is restricted; in fact, cars have been barred on occasions this year because of being under weight, and it is questionable if any organization has the right to dictate what the height shall be.

DECISION AGAINST FORD IN SELDEN SUIT

NEW YORK, Sept, 15—Special telegram —In the United States circuit court of the southern district of New York, Justice Charles M. Hough presiding, decision was rendered today sustaining the plaintiffs, the Electric Vehicle Co. and George B. Selden, in their suit for infringement of patent claims against the Ford Motor Co., C. A. Duerr & Co. the O. J. Gude Co., John Wanamaker et al., the Societe Anonyme des Anciens Establissements, Panhard & Levassor, André Massénet and Henry and A. C. Neubauer. In its decision the court holds that the Ford machine infringes the Selden patent claims 1, 2 and 5 of the plaintiffs, and that the Panhard infringes claims 1 and 5. The concluding paragraphs of Judge Hough's decision are as follows:

"No litigation closely resembling these cases has been shown the court, and no instance is known to me of an idea being buried in the patent office until the world caught up to and passed it, and then embodied in a patent only useful for tribute. But patents are granted for inventions. The inventor may use his discovery, or he may not, but no one else can use it for 17 years. That 17 years begins whenever the United States so decrees by its patent grant. That the applicant for patent rights acquiesces in delay or even desires delay is immaterial to the courts, so long as the statute law is not violated.

"On these principles complainants are entitled to a decree."

Claim No. 1, regarded as the most important one which the court holds both the Ford and Panhard machines have infringed, is as follows:

"The combination with a road locomotive, provided with suitable running gear, including a propelling wheel and steering mechanism, of a liquid hydrocarbon gas engine of the compression type, comprising one or more power cylinders, a suitable liquid fuel receptacle, a power shaft connected with and arranged to run faster than the propelling wheel, an intermediate clutch or disconnecting device and a suitable carriage body adapted to the conveyance of persons or goods, substantially as described."

Claim No. 2, of which it is held that the Ford machine only is an infringement, varies from No. 1 only in requiring the "suitable carriage body" to be "located above the engine." The fifth claim, which is held to be infringed by both the Ford and Panhard, sets forth substantially the same combination, but describes specifically the engine as comprising a plurality of cylinders with pistons arranged to act in succession during the rotation of the power shaft.

The complainant alleged that all three of the claims enumerated were infringed by all the defendants.

"This statement of complainant's position," says Judge Hough, "seems sufficient to show that the subject matter of these suits is the modern gasoline motor car. The defendants are severally the manufacturer, seller and user of the Ford machine—a well-known American make—and the maker and importer of the Panhard, a celebrated and typical French product. If these defendants infringe, it is because complainants own a patent so fundamental and far-reaching as to cover every modern car driven by any form of petroleum vapor, and as yet commercially successful."

After entering into a detailed discussion relative to the mechanical issues at stake, Judge Hough says: "If I have correctly apprehended it, there was clearly room for a pioneer patent, and it must now be held that on its face and in view of the art Selden's is such a patent. This means that Selden is entitled to a broad range of equivalents, and this rule as applied here results in this crucial inquiry—was Selden—or anyone else —entitled in 1879 to appropriate as one of the elements of any patentable combination a 'liquid hydro-carbon gas engine of the compression type?"

The cases in which the present decision was rendered were argued before Judge Hough for 6 days at the end of May and the beginning of June. In submitting the cases the record, which has been accumulating for the past 5 years, amounted to over 8,000 printed pages of testimony. The decision was rendered with unusual promptness.

The arguments were made by William A. Redding, Samuel R. Betts and Frederick P. Fish, for the plaintiffs, and the defendants were represented by R. A. Parker, Frederick Coudert, John P. Murray and C. Benton Crisp.

R. A. Parker, of Parker & Burton, of counsel for the defendants, in a statement issued last June bearing upon the possibility of a decision, said: "As to the probable developments after the decision, it may be stated positively that if the patent is upheld we will appeal, and if the patent is not upheld the plaintiffs are compelled to appeal by the contract between the A. L. A. M. and the other Selden interests. The only way this could be avoided by them would be to make a new contract and let the matter drop. At any rate, if an appeal is taken it would not get into the next court until probably a year from next October, and it would take perhaps 6 months in the court of appeals, that perhaps it would be 2 years from the present before another argument would be held, and it can be seen that the patent will nearly have expired, in 1912, before the case would be settled. Should it become necessary it might even be carried to the supreme court."

Coming Motor Events

Kansas City Tour—Reliability run for the Star trophies, Kansas City, Mo., September 20.

Good Roads Convention—Second annual good roads convention at Cleveland, O., September 21, 22, 23.

Long Island Derby—Motor Contest Association meet at Riverhead, L. I., September 29.

Munsey Tour—Washington-Boston and return reliability, September 21-29.

Fairmount Park Race—Second annual stock chassis race, 200 miles, at Philadelphia, promoted by Quaker City Motor Club, October 7.

Vanderbilt Cup Race—Annual Vanderbilt cup race, Long Island Motor Parkway, October 30.

Atlanta Show—First national show at Atlanta, Ga., November 6-13.

Atlanta Speedway—Opening meet at new speedway at Atlanta, Ga., November 9.

Flag-to-Flag Run—Start of reliability run from Denver to City of Mexico, November 22.

A. M. C. M. A. Show—Tenth annual show of A. M. C. M. A., Grand Central palace, New York, December 31-January 7.

A. L. A. M. Show—Annual show of A. L. A. M., Madison Square Garden, New York, January 8-15.

Chicago Show—Annual show of N. A. A. M. in Coliseum, Chicago, February 5-12.

NORMANDIE CUP TO BOILLOT

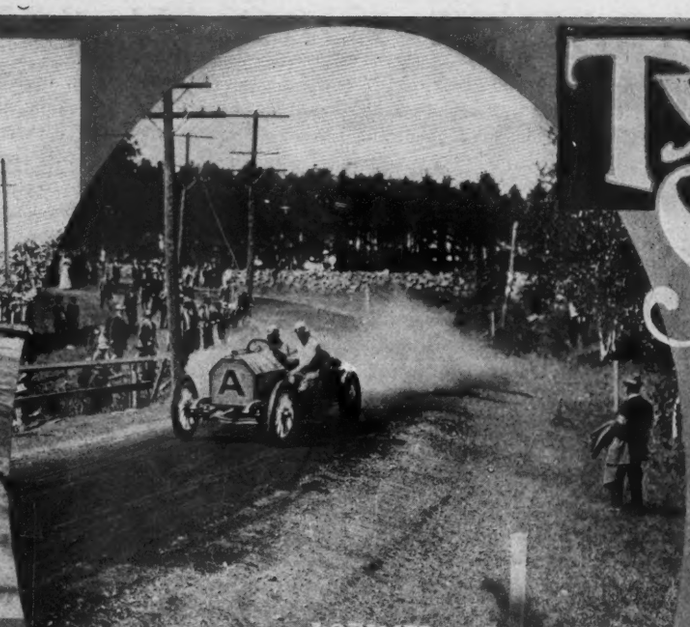
Paris, Aug. 30—The Normandie cup race, an annual event open to voiturettes, was run yesterday in the vicinity of Caen and, as generally expected, was won by a Lion-Peugeot. The driver was Boillot and he covered the course of 208.8 miles in 3 hours, 11 minutes and 27 seconds, averaging more than 65 miles an hour. There were eight starters, among the other contestants being Guippone in a Lion-Peugeot, Thomas in a Le Gui, Fournier in a Maurice Fournier, Barriaux in an Alcyon, Collomb in a Corre-LaCorne and Lormelle in a Darras. The starting place was near Caen, the route going through the villages of Bayeux, Tilly-sur-Seulles, Louvigny and back to Caen. This circuit was of 34.8 miles and had to be covered six times. Through the villages controls were used. The road was in fine condition. The organization was excellent, the course being policed by the gendarmes, local police and the members of the organizing club. It was a race devoid of anything sensational and the car which was the fastest and best handled won. No accidents occurred, but some of the contestants had more tire troubles than others.

GERMANY HOLDS SPEED TRIALS

Frankfurt, Aug. 24—Fritz Erle and the Benz cars which he drove were the feature of the kilometer speed trials which the Frankfurter Automobile Club held last Sunday in order to celebrate the tenth anniversary of the German club's existence. Erle won in the three events in which he competed and established the speed records of the day, his best time being :23⅘, equal to an average of 94.8 miles an hour. As the course was wet and the westrumite washed off by the all-night rain, the times made were nothing short of remarkable. About forty cars and half a score of motor cycles were on hand to try for the trophies and honor. All the events were run over a distance of 1 kilometer with a flying start.

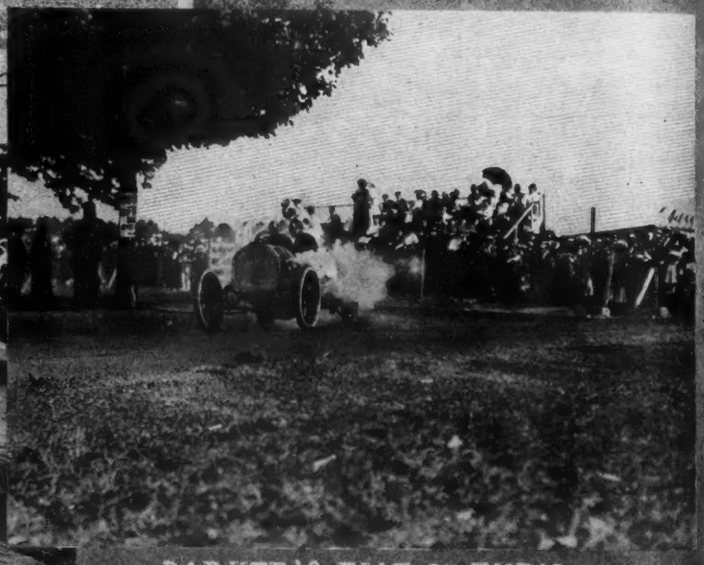
Typical Scenes on Lowell Circuit

ROBERTSON'S SIMPLEX winning



LORIMER on BACK STRETCH

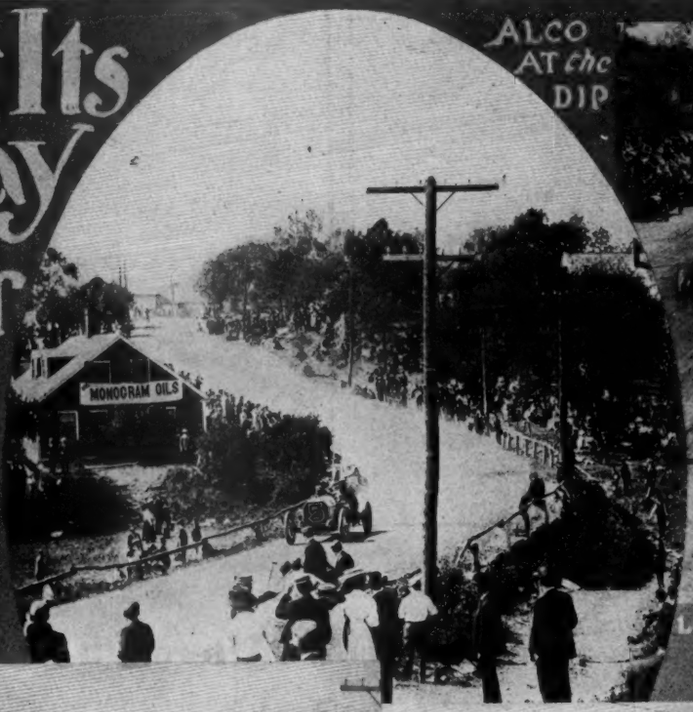
CHEVROLET



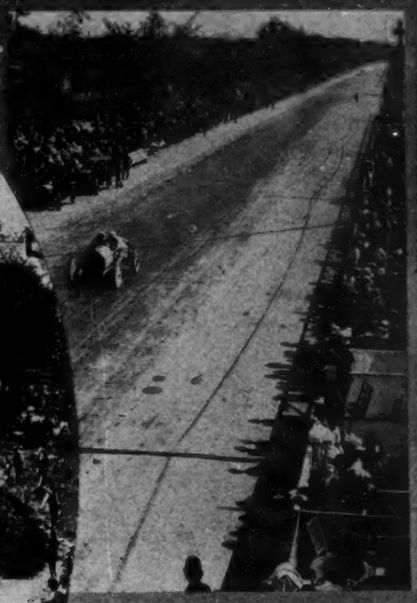
PARKER'S FIAT on TURN

TWO MAXWELLS in FULL FLIGHT

During Its Three-Day Motor Car Carnival



ALCO AT the DIP

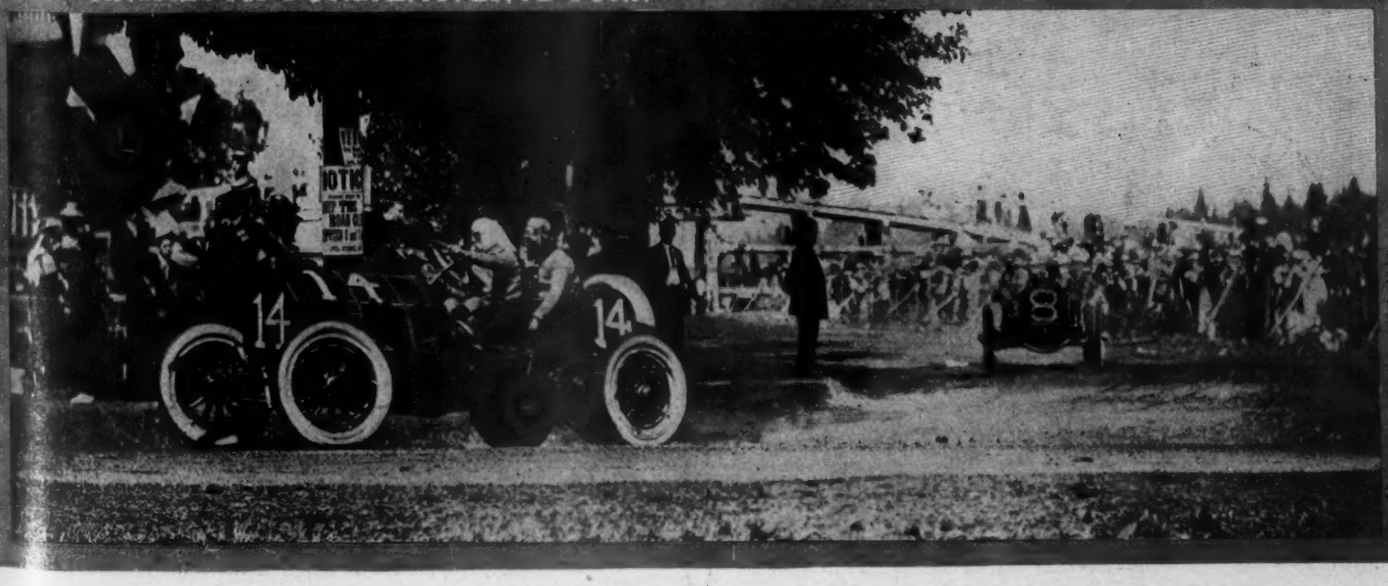


LORIMER in HOME STRETCH

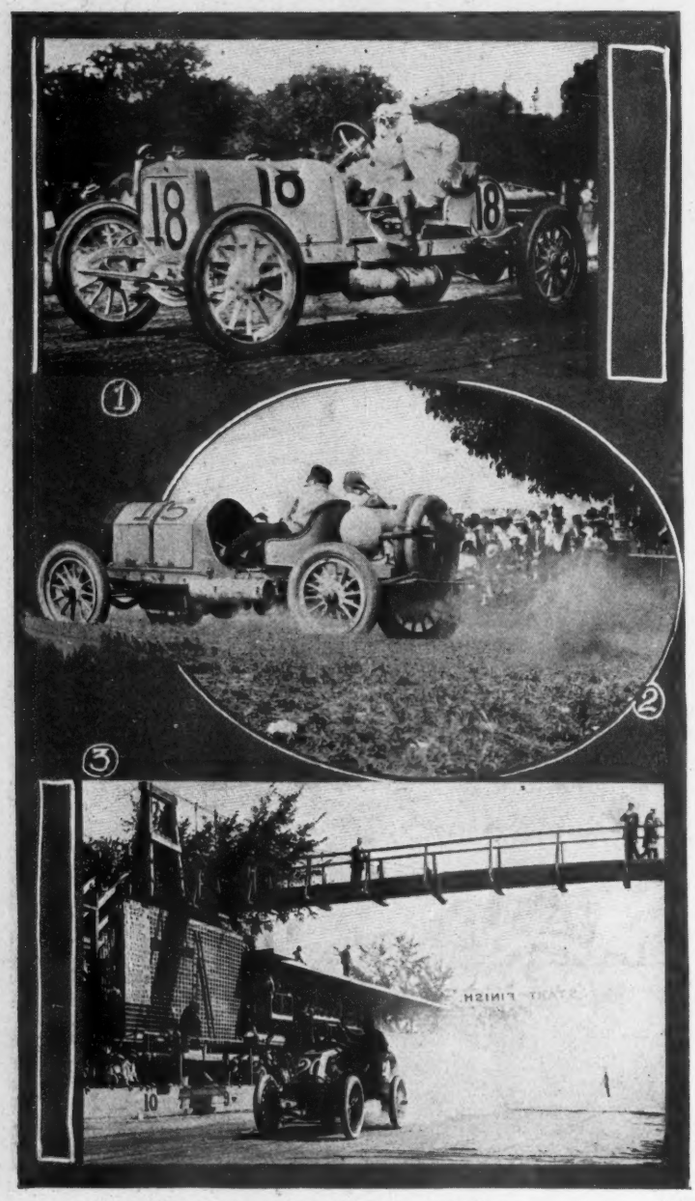
POOLE IN ISOTTA

LYTLE'S APPERSON in SPEED TRIALS

TWO KNOXES AT DUNBAR AVENUE TURN



CHEVROLET IN BUICK ON BACKSTRETCH IN THE BIG ROAD RACE AT LOWELL



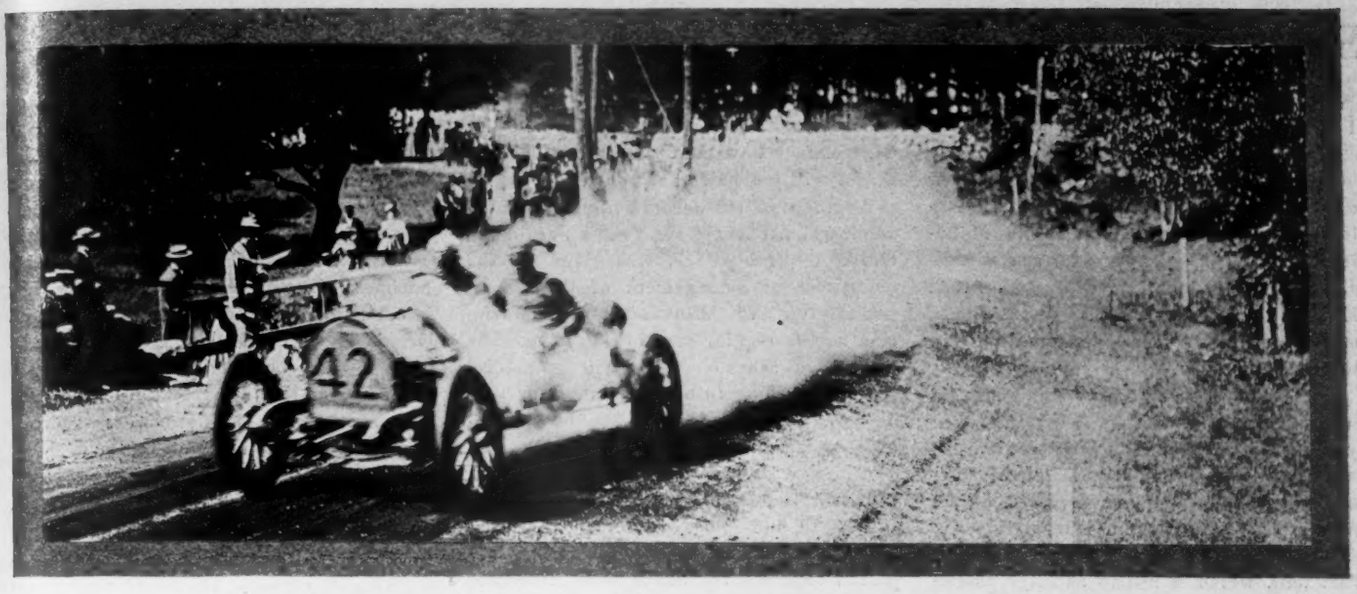
1—COBE IN LOZIER IN LOWELL RACE
2—SHAW IN STODDARD, RUNNING AT FINISH
3—RENAULT, BASLE DRIVING, FINISHING FIFTH

Aftermath of the Road-Racing

LOWELL, MASS., Sept. 14—Since the completion of the motor carnival a week ago, J. O. Heinze and the other members of the Lowell Automobile Club have had little time to devote to the discussion of another national racing carnavl over the Merrimack Valley course, the straightening up of all matters in connection with the present carnival having engrossed their entire attention. Lowell has proven one more example of the difficulty of making road racing a paying venture. The fact that not more than 6,000 of the 9,000 grand stand seats were sold is sufficient to prove that it is almost impossible for a motor club to properly control the selling of tickets for an event of this nature, and that the only profitable way to handle it is to place the entire ticket department in the hands of an organization experienced in selling tickets for events of this nature. The Lowell ticket situation proved to be but a little better than the Crown Point one in connection with the Cobe trophy races in Indiana in June, at which time the grand stands were not more than half filled, but hundreds of thousands of people had come to the conclusion that it was impossible to get seats in the grand stand.

Not a few of the spectators have been severe in their criticisms on the score board system employed. In that only those in the immediate center of the stand could make any use of the score board; whereas the vast crowds at either end were entirely without information on the performance of the cars. With poor score board arrangements the only advantage to a grand stand occupant is the sight of the cars working at the pits, which is a big factor. It is the general concensus of opinion that with an enormous grand stand three or four big score boards are necessary and as many announcers. On the score boards the exact minutes and second for each lap should be given and not the number of minutes closest to the lap time.

Considerable criticism has resulted regarding the patrolling of the course, it being general gossip that whenever provocation presented itself the crowds thronged over the back stretch without any resistance whatever from the military patrols. The contest board of the A. A. A. in the case of the Cobe trophy races insisted on having full militia protection before a sanction would be granted, but in this race, under its own immediate jurisdiction the military protection was of the poorest nature, the soldiers not appearing in uniform and being entirely without weapons. Such protection is not military protection in any sense of the word, and the report should not be spread broadcast throughout the country that it is such. Where military protection is required the soldiers should be in



KNIPPER IN CHALMERS-DETROIT, WINNING THE MERRIMACK TROPHY RACE

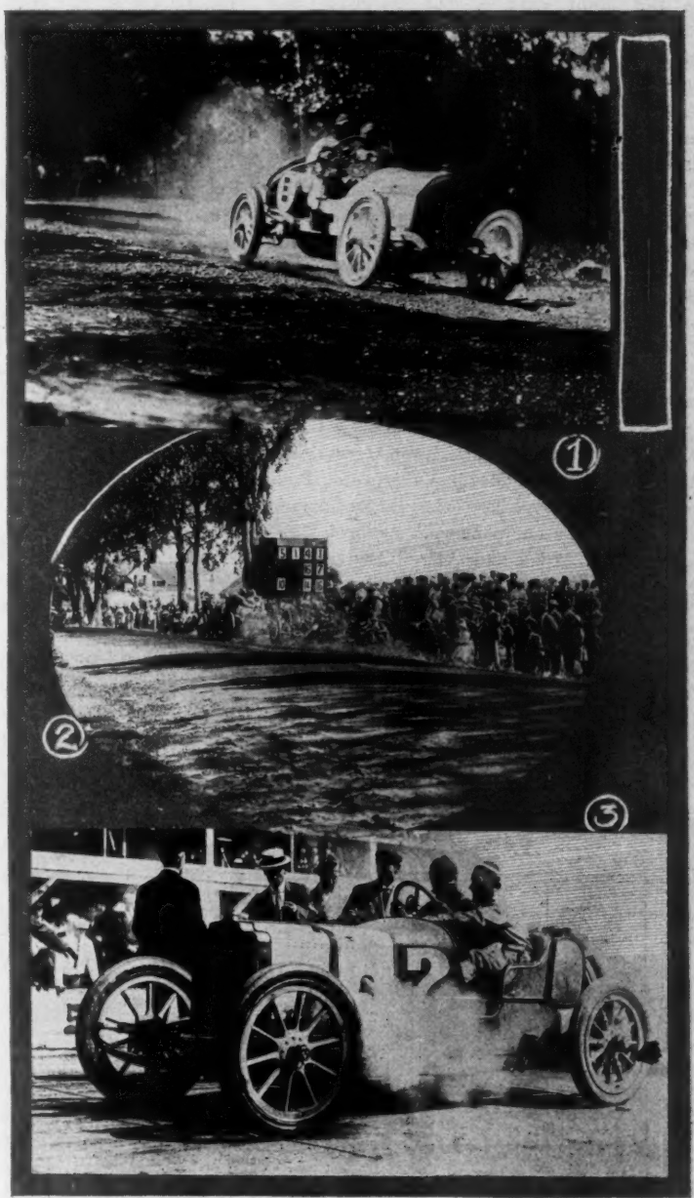
Carnival of the Lowell Club

uniform and under arms, otherwise the affairs have proven in every case so far fiascos of the greatest kind. Savannah and Chicago have demonstrated to the country what military protection for a road race means, and if such protection is to be demanded before sanctions are granted for road races by the A. A. A., then that body should adhere strictly to the rule, and not conduct its national road races unless military protection comes up to the required standard.

Among some of the entrants there has been a rumbling of discontent because of the action of the contest board accepting entries up until practically the evening before the start of the race irrespective of the fact that a definite date for the closing of entries was printed on the entry blanks. It is unfair for a contestant to live up to the rules by entering before the announced date to have others cars taken in at the last moment. Late entries of this nature merely become factors in the race and only serve to upset the general arrangements and make it almost impossible for a technical committee in charge to verify the stock status of the cars.

No new developments have been announced relative to the protest of the No. 12 Simplex driven by George Robertson, which was winner in the 318-mile race for the Lowell trophy. This was protested on the ground that it was fitted with a double gasoline pipe from the gasoline tank to the carbureter and that a separate oil lead was provided to drop oil on each of the driving chains, the protest asserting that such was not stock. Previous to the start of the race the entrant was required to file affidavits stating that such was stock, twenty-five cars having been so equipped. With these affidavits received, the car was permitted to start, but at the end of the race the contest board appointed a commission of two to immediately visit the Simplex factory in New York and discover if twenty-five cars had been so equipped or if the requisite number of parts to so equip them were on hand. The report of this commission is now in the hands of the contest board and an early decision is expected.

In a leisurely analysis of the performance of the cars at the 3-day race meet Lorimer in his 5 by 4¾-inch Chalmers-Detroit stands out prominent as the hero of the meet. In the race for the Vesper cup trophy he made the fastest lap of the course, doing the circuit in 10:31, which was 2 seconds better than Herbert Lytle made in his 5¾-inch square Apperson Jackrabbit in the big car race for the Lowell trophy. In the big car race Chevrolet in his 4½ by 5-inch Buick tied honors with Lytle, doing the course in 10:33, which was 2 seconds slower than Lorimer's performance.



1—STOECKER IN BENZ IN VESPER CUP RACE
2—CHALMERS' SIGNAL STATION ON BACKSTRETCH
3—BOB DRACH IN AMERICAN ROADSTER

SPACE ASSIGNED MAKERS AT ATLANTA SHOW

NEW YORK, Sept. 11—America's leading car manufacturers have taken space in the Atlanta show which will be held in the Auditorium-Armory, November 6 to 13, under the management of the National Association of Automobile Manufacturers. At the drawing for space Tuesday at the headquarters of the N. A. A. M., 7 East Forty-second street, sixty motor car manufacturers drew for space in the southern show.

Those who were fortunate enough to secure preferred spaces in the main hall include the Oldsmobile, which secured the first choice, and Maxwell, Mitchell, Dayton, Packard, Pope-Hartford, Cadillac, Woods, Franklin, Stevens, Pierce, Winton and Peerless. Those which drew space in Taft hall, which is nearly as large as the main hall and located on the main floor in the front part of the building, are Rambler, White, Mora, Premier, Reo, Marion, Ford, Buckeye and Locomobile. On the mezzanine floor overlooking the main hall are such representative concerns as Marmon, Glide, Dorris, Austin, American, Jackson, Moline, National, Knox, Chalmers-Detroit, Elmore, Stearns, Matheson, Hudson, Babcock and Apperson. Other cars which will be located in the main part of the building are the Cartercar, Brush, Standard, McIntyre, Jewel, Speedwell, Hupmobile, Overland, York and Selden.

In the basement will be located Columbus, Renault, Sultan, Streator, Fiat, Black, Inter State, Great Western, Rauch & Lang, Allen-Kingston and Rapid commercial vehicles. The Rapid Motor Vehicle Co., Pontiac, Mich., has taken the largest space allotted to any one concern. General Managers S. A. Miles and Alfred Reeves had general supervision of the drawing.

There are three organizations interested in the promotion of the Atlanta show—the National Association of Automobile Manufacturers, the American Motor Car Manufacturers' Association and the accessories people. Therefore the profits, if there are any, will be divided according to the space taken by members of the respective organizations. For instance, if the N. A. A. M. members have half the space the N. A. A. M. will get half the profits.

Approval of the decorative plans for the show which opens New Year's eve in the Grand Central palace, was given by the committee of management of the American Motor Car Manufacturers' Association at the regular monthly meeting. The decorative scheme which will transform the big building into a French trellis garden was considered to be the best available design.

The show committee, consisting of R. E. Olds, chairman; S. H. Mora, H. O. Smith, D. J. Post and Benjamin Briscoe, outlined the show plans which this year are expected to make the affair even more successful than the one of last winter. The report of S. H. Mora, chairman of the membership committee, showed that four new concerns had been admitted, bringing the membership up to forty-six. A number of applications have been received that will be passed upon at the next meeting.

Charles Lewis, president of the Jackson Automobile Co., was appointed the representative of the A. M. C. M. A. to attend the good roads convention of the American Automobile Association at Cleveland.

The plan of the American exposition at Berlin was submitted and was placed in charge of the show committee. The Germans are arranging for an exhibit of American goods at Berlin next May, June and July, and have set aside 10,000 square feet of space for American cars.

FRISCO BILLS A SHOW

San Francisco, Cal., Sept. 9—San Francisco is soon to have its third motor car show. It is announced that the exhibition will be held during Portola week, beginning Saturday, October 16, and ending October 23. From present prospects it appears that a majority of the dealers of the city will take part, and the further fact that the show will be held downtown, on the main business street, is expected to make for an immense attendance. The show, as in 1908, has not come without friction. There are a number of dealers who did not want a show. Some made the claim that it interfered too greatly with business, since buyers held off when they learned that there was going to be a show. Others regarded it as too expensive, and a few of the well-established houses frankly declared that they did not see why they should give the newer houses an opportunity to get a better foothold.

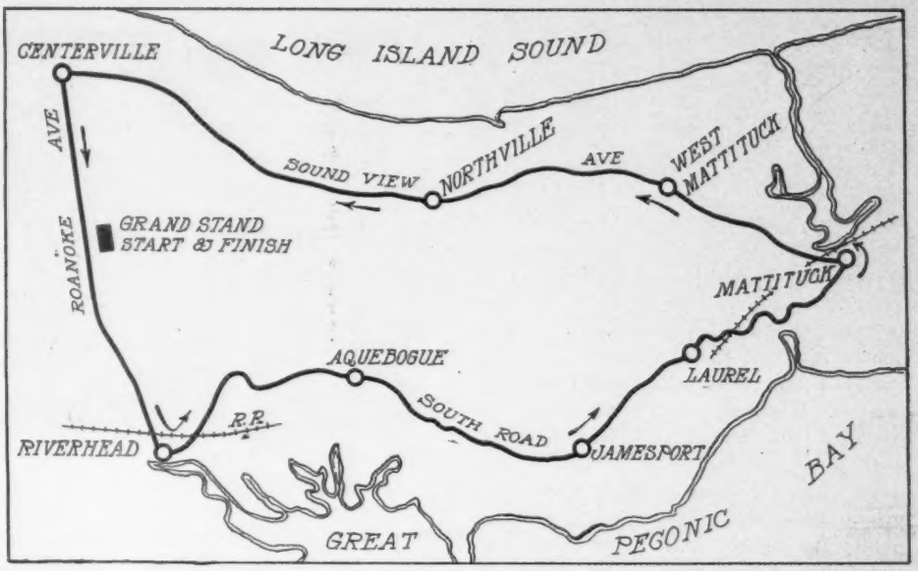
The show idea has been worked up by George F. Detrick, chairman of the Automobile Traffic Association, who looks after the traffic interests of a dozen of the larger motor firms. He found that a majority of the dealers were in favor of the show and proceeded to act accordingly. In the efforts to line up the local agents solidly there has been a good deal of friction, but most of them have come around. Almost a score of local dealers, including most of the big agents, have signed for space, and it is stated that their representation will total more than 150 different models, most of them of 1910 design. The show is to be held in the heart of the downtown district. It will be in the basement of the Emporium department store on Market street, near Fifth street. The area is very large and it will be possible to allow liberal space to all those who desire to make an exhibit. Already the main exhibitors have held a drawing and secured their space. During the show there will be in San Francisco probably the greatest crowd that has ever been harbored within its gates. The Portola celebration, commemorating the discovery of San Francisco bay by Don Gaspar de Portola and at the same time marking the rehabilitation of San Francisco from the effects of the earthquake and fire of April, 1906, has assumed an importance that has astounded even the most hopeful Californians.

TABLE SHOWING POSITIONS OF CARS EACH LAP OF LOWELL 318-MILE ROAD RACE

No.	CAR	Driver	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
12	Simplex	Robertson	3	2	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1
6	Isotta	Poole	12	11	8	7	6	4	4	4	4	5	3	4	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	2
7	Fiat	Parker	10	8	7	6	7	5	5	5	5	4	4	3	7	7	7	7	6	6	7	5	6	5	5	6	6	6	5	4	4	3
4	Buick	Burman	7	4	3	3	3	9	9	9	10	9	7	7	6	5	6	5	5	5	5	6	5	6	6	5	5	5	6	5	5	4
20	Renault	Basle	13	12	12	10	10	8	7	10	8	8	6	6	5	6	6	6	7	7	6	6	7	7	7	7	7	7	7	6	6	5
10	Knox	Shaw	16	13	14	14	13	13	11	11	9	10	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	6	$ III	Run.
14	Knox	Downey	15	14	15	13	14	14	12	13	11	12	12	12	12	11	11	11	10	10	9	9	10	9	9	9	9	9	Stil	Run	n of	
18	Lozier	Cobe	9	10	9	8	8	7	13	12	14	14	11	11	11	12	12	12	12	11	11	10	9	10	10	10	10	10	Sti	Re-	ning	
2	American	Drach	2	16	16	15	15	15	14	14	12	11	9	9	9	9	9	9	9	9	10	11	11	11	11	11	11	11	Sti	Ru-	ning	
11	Fiat	De Palma	6	6	5	11	11	10	8	7	7	7	5	5	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	
5	Alco	Grant	3	5	4	4	4	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1			
3	A-K	Hughes	11	9	10	12	12	11	10	8	13	13	10	10	10	10	10	10	11													
16	Apperson	Lytle	5	3	2	2	2	2	2	1	1	3																				
15	Stoddard	Shaw	14	15	13	9	9	6	6	6	6	6																				
1	Buick	Strang	17	17	17	16	16	16	15	15	15	15																				
8	Knox	Belcher	8	7	6	5	5	12																								
17	Buick	Chevrolet	1	1	11																											

VANDERBILT RACE DATE SET FOR OCTOBER 30

NEW YORK, Sept. 15—Special telegram—October 30 is the date set by the Motor Cups Holding Association for a 1909 race for the famous Vanderbilt cup. Practically the same Nassau county course, though considerably shortened, will again be the scene of the Vanderbilt contest, which this time will be for stock chassis racing craft. The circuit may be less than 15 miles in length, of course utilizing the Long Island motor parkway to its fullest extent and the necessary connecting state roads to complete a course. The proper application for a sanction for the race has been forwarded to the offices of the A. A. A. contest board at Buffalo. The race this year will be similar to last year's motor parkway sweepstakes, which proved spectacular and decidedly interesting. Four classes of cars will compete simultaneously, according to classifications recommended by the general rules committee of the Manufacturers' Contest Association, the smaller cars being stopped at different shorter distances, leaving the larger ones, competing for the Vanderbilt trophy, to hold the stage for the final rounds of the competition. The Vanderbilt cup will be open to stock chassis in class 1—451 to 600 cubic inches piston displacement—and class 2—301 to 450 cubic inches—both running in one class for a distance of approximately 275 miles. Trophies will be offered for stock chassis in class 3—231 to 300 cubic inches—at approximately 205 miles, and class 4—161 to 230 cubic inches—at approximately 135 miles, while special trophies will be awarded to the winner in classes 1 and 2 competing in unison for the Vanderbilt cup. Entry blanks, now in the hands of the printers, will be mailed from the new office of the Motor Cups Holding Association, Denton building, Mineola, L. I. The entry fee for classes 1 and 2 will be $500 for each car, and that for classes 3 and 4 $250 for each car. A meeting of the Motor Cups Holding Association took place on Monday afternoon last, at which details of the race were acted upon and the definite announcement of a race authorized by W. K. Vanderbilt, Jr. The course, as tentatively selected, is triangular.



MAP SHOWING ROAD RACE COURSE AT RIVERHEAD, L. I.

SEATTLE HOLDS MOTOR TOURNEY

Seattle, Wash., Sept. 11—The events of the motor tournament held under the auspices of the Alaska-Yukon-Pacific exposition were inaugurated Thursday, the card consisting of hill-climbing contests up Queen Anne hill on Queen Anne avenue from Roy street to Highland drive. The best time over the course was registered by L. L. Teachout on a motor cycle, who went up the incline in :24⅘, winning the event handily. The best time made by a motor car was :27⅘ by Henry Schwab, driving an Itala, but the record does not stand, as the time was not made in competition. The Itala, however, captured first place and the cup awarded to the winner in the contest for machines costing $4,000 in :32⅘. There was but one entry, a Ford, in the race for cars costing $850 or less. Harry Disher made the climb in :31, but was not given first place or the cup, as his car was stripped, which was contrary to the rules. First place for cars valued at between $1,250 and $2,000 was won by Mantell in a Franklin in :39⅘. The best time in competition was credited to a White, which covered the distance in :27⅘. In the free-for-all contest, open for all gasoline cars, an Allen-Kingston made the hill in :28. A Thomas Flyer driven by Fred Aroki ran second to the Itala in the race for cars valued at $4,000 in :36. C. F. Cummings drove an Acme up the hill in :38⅕ and was awarded third place.

SANCTION GRANTED MORGAN

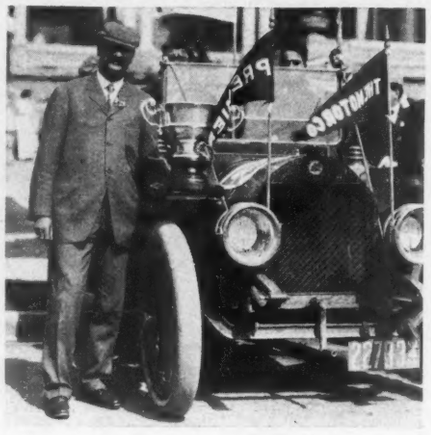
New York, Sept. 13—There was some delay getting the official sanction for the Riverhead, Suffolk county, L. I., road races, owing to the effect that the value of the prizes were not given and the entrance fee being above what the A. A. A. rules called for. The promoters had this in mind when the first entry blank was gotten out, but as they had decided to divide the profits of the meet with the winning drivers in each class, they believed this would meet with the approval of the contest board. The matter was finally settled at Lowell when W. J. Morgan and A. D. Corwin, of the Motor Contest Association of New York, met Chairman Hower and members of the contest board of the A. A. A., when it was decided new entry blanks should be gotten out for the Riverhead-Mattituck race, in which the new price conditions were stated. George Robertson was nominated to look after the drivers' interest, Alden McMurtry being appointed as representative of the contest board to supervise the race. The date was put back 8 days, so instead of being on September 21 the Long Island stock car derby will be run on September 29.

LEXINGTON ON THE MAP

Lexington, Ky., Sept. 12—Lexington, with a population of 45,000, is rapidly becoming a big motoring center. Until May this year motoring activities were confined solely to the seven city garages until the incorporation of the Lexington Motor Car Co., which now is building the Lexington car and up to date has delivered upwards of seventy. Lexington streets are in poor condition for motoring, but Fayette county, in which the city is located, is noted for its macadam roads, all of which are kept in excellent condition and many miles of which are well oiled. The present season shows over 200 cars in the city, many of which are high-priced machines. There are at present six garages handling cars, among which is the Phoenix Motor Car Co., with A. C. Hamilton as president. It is located in a building which used to be an old livery stable, which has been renovated to meet the conditions. The Lexington, Oldsmobile, Speedwell and Maxwell are sold from this garage. Seal Updike, located in a new one-story garage, sells the Rambler. The Davis Motor Car Co. is distributor for the Marmon and Thomas. The Stoddard-Dayton and Reo cars are sold by the Blue Grass Auto Co., which occupies the first and second floors of a three-story building. The Smith-Watkins Co., from the garage in the rear of its store, retails the Corbin and Cadillac. The Brush runabout is handled from the Candiote garage.

NORRISTOWN OWNER PREMIER RUN WINNER

PHILADELPHIA, Pa., Sept. 13—An even half hundred Premier cars participated in last Saturday's Cape May reliability run of the Motor Co., of this city, local agent for the Premier car. B. E. Block, of the Norristown Automobile Club, won the handsome silver trophy hung up by the Premier Motor Mfg. Co., of Indianapolis, for having covered the course nearest to the official time. E. T. Giberson, of Toms River, N. J., captured second honors and a completely equipped motor hamper. S. N. Root, of Lancaster, annexed the third prize, and Mrs. William J. Hendren, of Philadelphia, was awarded the women's prize. Auxiliary cash prizes having been offered to residents along the route guessing nearest the official time, the judges refused to make public the figures until after those estimates had all been received and classified. A banquet, fireworks on the beach and speeches by the mayor of Cape May, President H. O. Smith, of the Premier company, and President Allen Sheldon, of the Motor Co., wound up the day. The return trip was made yesterday afternoon. The Premier flying squadron, which made such an excellent record on the recent Glidden, was conspicuous contenders. These cars were driven by Ray MacNamara, Webb Jay and H. L. Hammond.



B. E. Block, the Winner

CHICAGO ANNOUNCES LONG TEST

Chicago, Sept. 13.—Announcement was made today by the Chicago Motor Club that its annual reliability run this year would be held October 12, 13, 14 and 15, and that as usual it will be a 1,000-mile journey, spread over 4 days. This time, however, it is not to be out and home each day. Instead the first day will carry the contestants 250 miles through Illinois, Iowa and Wisconsin, and the night will be passed at Platteville, Wis., returning to Chicago the second day. On the third day the run goes into Indiana, with the night stop at Indianapolis and the return made the fourth day. On the first day the route goes through Elgin to Dubuque, Iowa, and then to Platteville, Wis., for the night. Returning the second day, the trail passes through Madison and Milwaukee back to Chicago. Going out again the third day the way is through Joliet and Kankakee, Ill., to Crawfordsville, Ind., and from there to Indianapolis. The fourth day, coming back to Chicago, the contestants come by way of South Bend and Michigan City. The rules have not been announced as yet, but the A. A. A. classification scheme will be followed. One entry already has been made—a Falcar, which will be driven by W. H. Pearce, who handled the car in the Indiana trophy road race and which will be No. 1 in its class. The reliability this year goes into territory heretofore not touched by the Chicago Motor Club and the route selected covers all sorts of going, making an interesting trip.

THIRTY-SEVEN IN MUNSEY TOUR

Washington, D. C., Sept. 1—The entry list in the Frank A. Munsey reliability contest closed today with thirty-seven nominations, representing thirty-two different makes. Seventeen factories have entered twenty-one cars, while the other entries are divided among ten dealers and six private owners. The tour, which starts from this city on September 21 and finishes here on September 29, will pass through seven states and the District of Columbia and will take in all the important eastern cities, including Baltimore, Philadelphia, Albany, Springfield, Boston, Hartford, New York and Atlantic City. The cars will be on the road 7 days with 2 days' layover in Boston, the distance to be covered being 1,282 miles, making the average daily mileage 183 miles. The Munseyites will be extensively entertained in all the cities where night stops are made, while other cities have arranged to provide lunch for the tourists when they pass through. The entries in the order of their receipt are as follows:

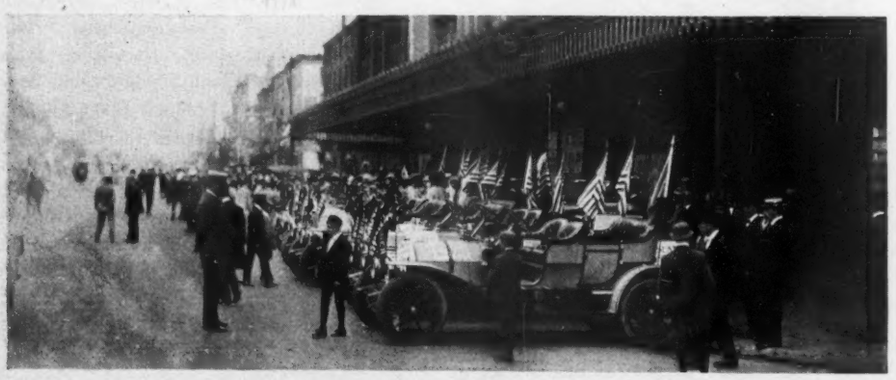
1—Chalmers-Detroit
2—Hudson
3—Mitchell
4—Premier
5—Washington
6—Stevens-Duryea
7—Ford
8—Jackson
9—Maxwell
10—Oldsmobile
11—Maryland
12—Pullman
13—Pullman
14—Spoerer
15—Columbia
16—Croxton-Keeton
17—Croxton-Keeton
18—Corbin
19—Hupmobile
20—Winton
21—American Simplex
22—Cameron
23—Atlas
24—Crawford
25—Acme
26—Reno
27—Matheson
28—Renault
29—Hupmobile
30—Marmon
31—Washington
32—Washington
33—Franklin
34—Selden
35—Michigan
36—Elmore
37—Pullman

MITCHELL RANGER PROGRESS

Chicago, Sept. 15—Reno, Nev., was reached last night by the military trio, carrying dispatches from Major-General Leonard A. Wood, U. S. A., New York, to Major-General John F. Weston, U. S. A., San Francisco, in the Mitchell Ranger, after experiencing road conditions which would be considered impossible in any civilized country and which forced the party to secure permission from the Union Pacific authorities to use their bridges, the others having been swept away by washouts and swollen rivers. Private Parrott, in charge of the dispatches, Lieutenant Rosenthal and Driver F. Zirbies, who have condensed more novel experiences in that portion of their trip lying between western Iowa and Ogden, Utah, than even the New York-Paris racers encountered, retain their good cheer.

GUARD AGAINST JOY RIDING

Columbus, O., Sept. 13—Discussion has been going the rounds recently over the New York state law enacted recently punishing joy riding with long imprisonment. Columbus papers have urged the passage of such a law by the Ohio general assembly. State Registrar of Automobiles Fred H. Caley points out that owners of cars have sufficient protection against joy riding in the present statute. Section 22 of the motor law provided "No chauffeur or other person shall drive or operate or cause to be driven or operated, any motor vehicle upon any public highway or road of this state in the absence of the owner of such motor vehicle, without such owner's written consent." Section 30 provides "Any person violating any of the provisions of Section 22 of this act shall be deemed guilty of a misdemeanor, and upon conviction shall be fined not to exceed $200 or imprisonment for a period not to exceed 6 months, or both at the discretion of the court."



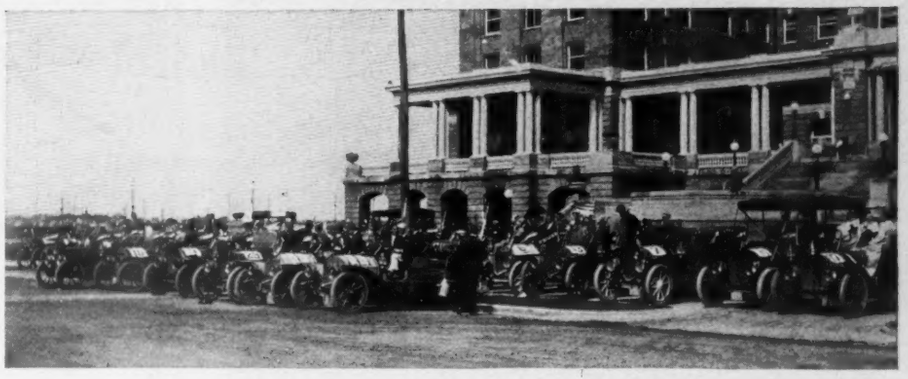
Premiers Lined Up for Start on Broad Street, Philadelphia

BABLOT SMASHES MONT VENTOUX HILL MARK

PARIS, Sept. 5—Bablot in his powerful Brasier smashed his own record in the Mont Ventoux climb today. The new mark for the 13.4 miles up-hill course now is 18 minutes 41 seconds, a reduction of 27⅘ seconds, an average of 43 miles an hour for 13.4 miles. Only eight cars took part in today's trials, the second day of the meet. It was said about the crowd of sportsmen that if the Brasier had not been entered that a score of others would have taken a chance, but as it was they were pretty sure that, barring an accident, the Bablot-Brasier was bound to take the prize.

The crowd was even larger today than yesterday and the weather was nearly perfect. On top of the mountain, near the observatory, there was a thick fog and this caused the contestants to slow down. Without this hitch Bablot might have cut another 10 seconds from his time. Gaste in his six-cylinder Rossel might even claim that he would have done better as he covered more than half of the course several seconds faster than Bablot, but then in the fog he did not have as much nerve as the Brasier champion and slowed down much more than he did. The time of the Rossel car was 21:20. But even more praiseworthy than the times made by the 120-horsepower Brasier and the similar powerful Rossel is the record of the Opel car driven by Lochner. This car had a regular stock car chassis, so it is claimed at any rate by the entrant, a motor 4.3 by 5.9 and it climbed the 21.6 kilometers in 20 minutes 13⅘ seconds. Only one other car did better and that was an 80-horsepower Motobloc driven by Pierron, which made the climb in 19:42. The time of the other starters was as follows: Tangazi, in a Lancia in 20:15⅘; Cierano, in a S. C. A. T. in 24:17⅘; Grosson, in a Turcat-Mery, in 31:20 and Verdier in a Mieusset, in 31:22⅘.

On the first day of the meeting the interest of the crowd centered upon the two Spanish cars, the Hispano-Suiza. They already had made a very favorable showing in the voiturette race of l'Auto and now it was to be seen what their qualities as hill-climbers were. In the two classes in which they started the cars made in Spain won easily. In class 1, Derny ascended the 13.4 miles course in his four-cylinder 3.1 by 7.1 Hispano-Suiza in 24 minutes 11⅘ seconds, beating Giuppone, driving the Lion-Peugeot, by 58⅕ seconds. In class 3, it was a much more decisive victory for the Spanish car driven by Zuccarelli. He made the ascent in 24:44⅘ while Fabry in a Rolland-Pilian required 30:48, Garetto, in a Rolland-Pilian, 31:41⅘, Fenouille, in a Rolland-Pilian 32:39⅕ and Fournier in a Gregoire 36:52⅕. It is possible that Fenouille would have finished nearer to the winner had he not met with an accident. About half way up he came suddenly upon a motor cyclist. In trying to avoid the latter Fenouille ran into a road sign post. No harm was done to the car or driver as the latter quickly backed out and restarted to complete his climb. There were only three starters in class 3 which was won by Bablot in a little Brasier touring car in 43:39⅘. A Sizaire-Naudin was second and a Ravel third. The two Spanish machines which made the best time were the lightest of all the cars. The one driven by Derny weighed 1,400 pounds and the one of Zuccarelli 1,546 pounds. The Lion driven by Giuppone weighed 1,770.



FINISH OF THE PREMIER TOUR AT CAPE MAY

The start for the Ventoux hill climb is made from the village of Bedoin which is located 675 feet above the sea level. During the first 3½ miles the course is not very difficult but thereafter the average gradient is 9 per cent with the exception of about 1 kilometer where the gradient is but 6 per cent. During the last ½ mile the course becomes very steep gradually increasing to 14 per cent at the finishing line. The length of the course is 21.6 kilometers or 13.4 miles. At times it is very foggy up the hill and thus very dangerous. The roadway itself is fair but there are many sharp turns.

FAST TIME BY BABLOT

Salon, Aug. 29—For the third consecutive year Bablot, one of the drivers who have made famous the name of Brasier, has come out as the winner in the competition for the Rothschild $1,000 trophy and now it is his. The event was on today's calendar. The affair took place upon the famous Salon-Arles road. There were not many contestants for the Rothschild prize. It was said long ago in motordom of France that if Bablot would enter his swift 120-horsepower Brasier that there would be no show for any other big car with the exception of the Fiat or Mercedes, which, however, one was sure would not be entered. So only a score of entries were received. The Rothschild cup contest consisted in two events, a kilometer and a 5-kilometer race against time, both from a flying start. The contestant who made the fastest time in each event was the winner. Bablot, driving a Brasier, won the trophy in 1907 and 1908, while the first year it was put up, in 1906, the winner was a Mors. It had to be won three times by the same driver upon a car of the same make in order to become his property. Today Bablot made it his third and thus final win. In the 1-kilometer trials Bablot covered the distance in 21⅕ seconds, thus having averaged 105.6 miles an hour and incidentally made the best time of the year in Europe thus far for the kilometer from a flying start. In the 5-kilometer event Bablot probably established a new world's record by going the 3.1 miles in 45⅘ seconds, which is at the rate of 106.6 miles an hour. Bablot clipped off 12 seconds from the time made last year and went 13⅕ seconds faster than Gaste, who took second place today.

PRIVATE PARROTT IN MITCHELL RANGER

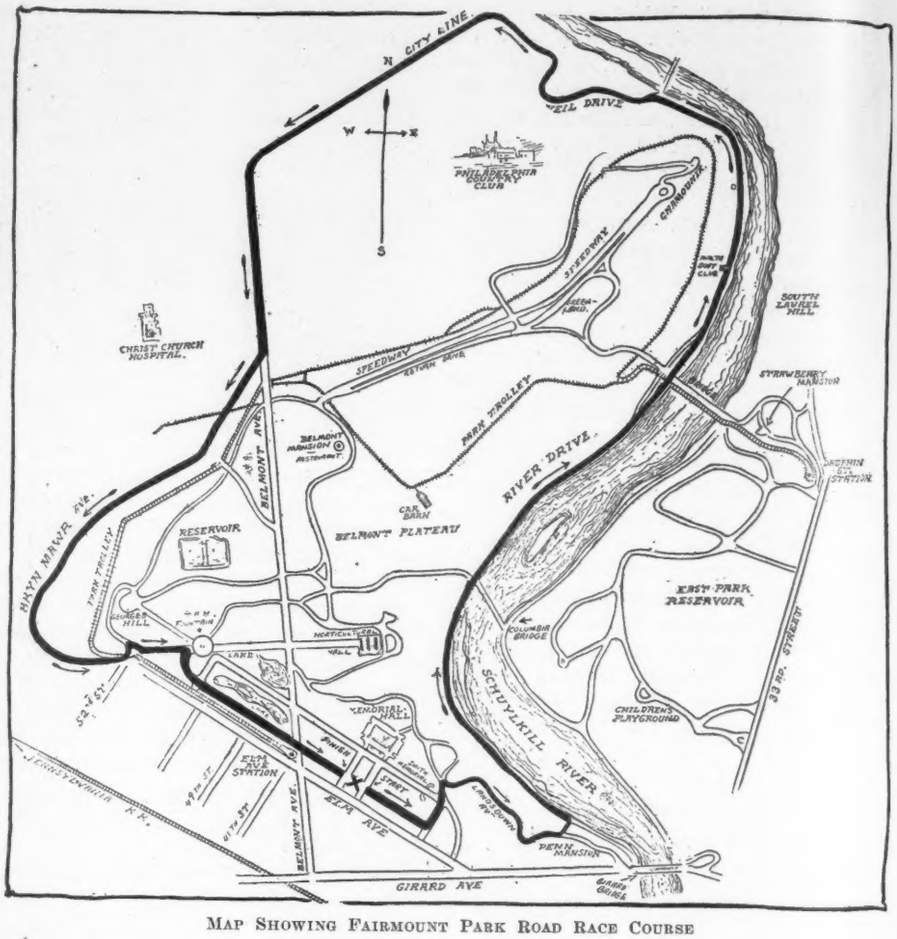
WARNER MAKING GEARS

Toledo, O., Sept. 12—The Warner Mfg. Co., of which T. W. Warner is general manager, is starting a gear plant in buildings rented from the Overland Automobile Co., which are part of the old Pope-Toledo plant. These quarters, however, are only temporary, it being the intention of the Warner company to erect a permanent building of saw-tooth construction and made of concrete and steel. This new plant will be located either in Muncie, Ind., Toledo or Detroit, and will give employment to 500 men.

ALL PHILADELPHIA WORKING FOR ROAD RACE

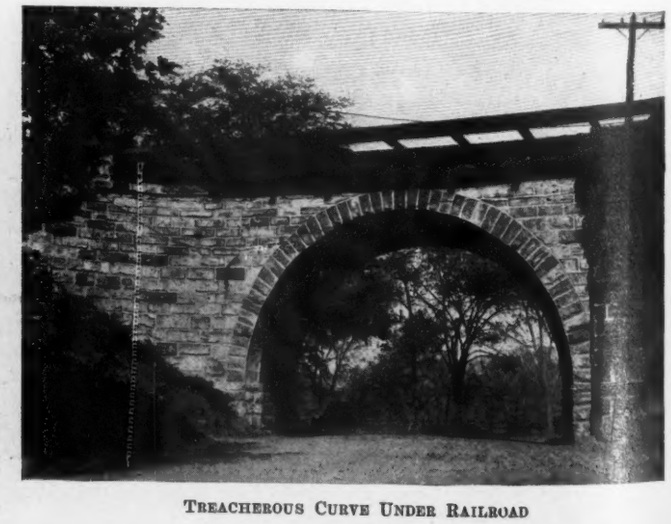
PHILADELPHIA, Pa., Sept. 10—Given fair treatment by the weather man, the Fairmount park 200-mile stock chassis race, October 9 next, is bound to be a success. Originally under the auspices of the Quaker City Motor Club, the contest committee of that organization has been relieved of all but the actual running of the race. The friends of the four prominent local charitable institutions, which have been named as beneficiaries, have taken all the onerous burden of grand stands, parking spaces, tickets, ushers and the hundreds of smaller details off the hands of the committee and are working hard to have everything in readiness by the day of the race. Society has taken hold of the affair with avidity, and the eclat given to the event by the active coöperation of the Quaker City's elect will count heavily in the final financial summing up. By standing back of the Q. C. M. C. in all its arrangements, the city officials have committed themselves to assist to the limit in carrying the race through to a successful conclusion; in fact, the city is a co-promoter with the club. What this means when it comes to course protection, and the preliminary use of the city's best park roads for several hours of each day in the week preceding the race, is manifest. Being responsible, the city will see to it that the chances of accident are minimized. Last year officers were stationed every 80 feet around the 8-mile course. This year, with the assistance of the local militia, the cordon of guards will be doubled. The committee in charge of the stands and parking places has arranged for 1,000 of the latter, located at the eight best vantage points around the course. That this number will be much too small is apparent from yesterday's announcement that the Norristown Automobile Club and the Delaware Country Automobile Club had each preëmpted 100 of the spaces, which with the fifty taken—and paid for—by the Q. C. M. C., makes one-fourth of the available parking space already disposed of. Similar applications are expected from all the upstate, New Jersey and New York clubs, which have been communicated with and urged to make early reservations. Club runs to Philadelphia have already been called by several Pennsylvania Motor Federation clubs, and it is expected that quite a number of other organizations within 200 miles of the Quaker City will do likewise.

Highway Commissioner William H. Brooks is personally giving his attention to the course, which is identical with that of last year. Oil wagons and steam rollers have been at work all this week and will be continued on the job up to the day of the race. The entire 8 miles will be ironed out several times by the heavy rollers; depressions filled up where Parkside avenue debouches into the Fifty-second street entrance, and the new road built specially last year to fill a gap in the course will be still further widened and improved.



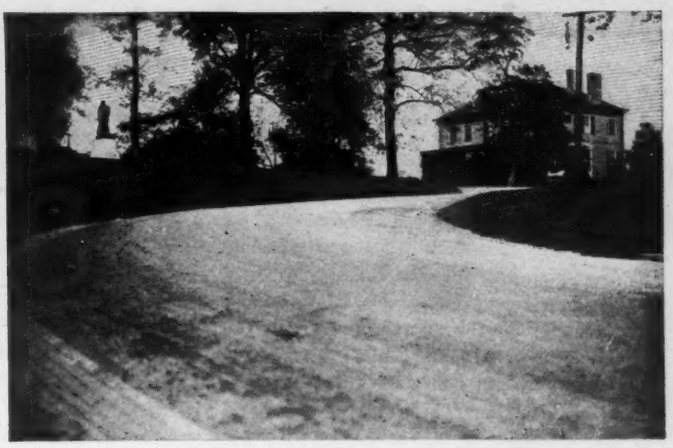
MAP SHOWING FAIRMOUNT PARK ROAD RACE COURSE

INCLINE NEAR SWEET BRIER HILL



TREACHEROUS CURVE UNDER RAILROAD

ONLY NARROW PLACE ON COURSE, 20 FEET WIDE



S CURVE LOCATED ON SWEET BRIER HILL

The start and finish, as last year, will be on the south concourse, in front of Memorial hall—a relic of the centennial exposition of 1876. Thence over the 100-feet-wide boulevard for a third of a mile, where a gradual swing to the left takes the racers into the similarly wide road leading from the Forty-first street entrance, past the looming Smith memorial, to the Lansdoune drive, in reaching which the narrowest bit of road on the course is encountered—20 feet wide. From this point to the West river drive will furnish the most difficult bit of driving on the route—a drop of nearly 100 feet over the sinuosities of Sweet Brier hill and thence down to the lowest level of the Schuylkill valley. Then follows a 3-mile opportunity to beat it over the West river drive, following the windings of the placid Schuylkill, to the Neill drive, which is entered after a sharp turn to the left under the Reading railway bridge. Neill drive will furnish possible thrills with its hairpin curve and its mile of uphill work into and along City Line road to Belmont avenue. City Line is in perfect condition, although a trifle narrower than the park roads. Belmont avenue offers a ¾-mile straightaway, followed by a gradual right swing into Monument avenue, which in turn as gradually enters Bryn Mawr avenue. Then follows a swing to the left around the broad base of George's hill into Parkside avenue—brick pavement—to the Fifty-second street entrance to the park. A few hundred feet and a sharp right turn is succeeded by a short straight dash and another sharp right turn to avoid the Catholic monument, and then into the head of the stretch—the south concourse. The length of the course is exactly 7.8 miles, and the conditions call for twenty-five round trips, a total distance of 195 miles.

Repair and supply pits will be located immediately in front of the main stand on the south concourse, and there is naturally a big demand for parking spaces and box seats at this point. The committee will get around this difficulty by auctioning off these choice viewpoints.

Auxiliary prizes are being added to the list from time to time. The latest was announced today, G. H. Stetson hanging up $100 in cash for the driver of the fastest lap. Should the winner also negotiate the fastest lap and drive the most consistent race he would do a fairly good day's work—$2,500 cash, $1,000 MacDonald & Campbell solid silver trophy, Autolight company's gold chronometer and Stetson's hundred. And there are well-founded rumors that several of the local papers and business houses will offer additional prizes.

The following officials and committees have been named and are actually at work on the details of the race apart from the contest itself, which will be looked after by the Quaker City Motor Club:

Chairman—Dr. Joseph S. Neff.
Vice Chairmen—Dr. Lawrence F. Fleck, Dr. Charles C. Hatfield, Dr. T. Mellor Tyson, Theodore M. Etting, Frank Hardart, Sr.
Treasurer—Mayor John E. Reyburn.
Secretary—William F. Gleason.
Finance Committee—Dr. Lawrence F. Fleck, chairman; Daniel Baugh, Dr. Ward Brinton, Charles D. Burk, Louis C. Madeira, Colonel Edward de V. Morrell, Joseph Walsh, James M. Wilcox.
Publicity Committee—George M. Graham, chairman; Richard J. Beamish, H. L. Buckley, John Cleary, Herbert C. Crowhurst, Harry C. Harborch, George W. B. Hicks, Richard Kain, William M. Matos, William Rocap, H. Starr Richardson, George M. Schell, Frederick L. Weede, Clyde Woolson.
Police and Ushers' Committee—Dr. J. Willoughby Irwin, chairman; Jacob H. Baltz, Samuel Castner, Jr., Frank A. Craig, Fred C. Dunlap, Dr. C. Lincoln Furbush, Arthur Folks, H. Laussat Geyelin.
Committee on Stands and Parking Places—Dr. Charles J. Hatfield, chairman; W. J. Clothier, Frank Hardart, Sr., Philip H. Johnson, William M. Ker, Robert L. Montgomery, W. D. Robinson, Edward D. Solenberger, Dr. J. Gurney Taylor, Richard C. Wood, J. R. Ludlow Gibbons.

The Warner Instrument Co. has advised the committee that it will erect and operate free of charge the score-board, showing the positions of the first three cars.

PETREL ENTERS MILWAUKEE

Milwaukee, Wis., Sept. 12—The Petrel Motor Car Co. of Milwaukee, Wis., is the first entrant in the 24-hour contest which will be the feature of the 2-day speed carnival to be held by the Milwaukee Automobile Club at State Fair park, Milwaukee, on September 24 and 25. Both are 1910 models and will bear numbers 1 and 2. Governor Davidson of Wisconsin has ordered two full companies of the national guard to police the grounds for the club. More than 100 men will encamp on the grounds on Thursday and stay until Sunday following the race. A 100-mile race has been placed on the program and a large number of entries are expected for this event. There will be shorter races on Friday and Saturday.

START AND FINISH ON SOUTH CONCOURSE STRETCH

Interesting Trip from Los Angeles to Goldfield

IT seldom falls to the lot of the tourist to make such a novel and interesting excursion as the one from Los Angeles to Goldfield over the roughest country in California and Nevada, recently completed by a party of six, including the writer. The start was made from Los Angeles at noon in a car of local manufacture and a delightful run up the coast followed in the afternoon over varying grades through the hills to Ventura, which was reached at nightfall. The course followed was that of the old Spanish Camino Real, or royal road, which connects a dozen ancient missions extending along the California coast. A movement is in progress for the reconstruction of this old road, which will eventually be a boulevard reaching from end to end of the state.

Rising early on the second day a run was made to Gaviota, over the Casitas pass, through the beautiful coast city of Santa Barbara and along the road which follows the contour of the coast for some miles. This is one of the most beautiful runs in the state. The roads were in fair condition all the way, a fact due in large measure to the wide introduction of motor cars in California, which has done wonders for the roads of this part of the west. Los Angeles lays claim to having more motor cars than any other city of its size in the world. Supervisors and county road foremen are making highways now which come more nearly up to the standard set by motorists, and the farmers and country dwellers generally are correspondingly pleased, and are doing not a little to aid the work. The Automobile Club of California has posted the main arteries of travel with durable iron signs so that routes to any part of the state are no longer difficult to follow. These things add greatly to the pleasure of motoring in the Golden state and are making it more attractive each year as a recreation field for motorists from all parts of the United States east of the Rockies.

On the third day a run of 186 miles was made from Gaviota through Los Olivos to King City, passing the beautiful Santa Ynez mission at the sleepy little town of the same name. The padres chose an ideal location for one of their most famous missions and the village which has grown up about it, "since the gringos came," is none the less picturesque because white men have made it. All the country hereabouts partakes of the *dolce far niente* of other and older days; no one is in a hurry, nor can be hurried for either silver or gold. Life amid the orchards of this valley, where great quantities of fruit are raised for the Los Angeles and San Francisco markets, with warm, sunny days and cool, refreshing nights, must be full of charm.

An ideal road leads through low hills from King City into Santa Cruz where some time was spent viewing the bay and riding round the arching crescent of the smooth, hard beach or through the picturesque town. Despite the general excellence of the road traversed during the day, some of it was very sandy, and there were times when it seemed that the machine must be held down by the sand into which the great tires sank. But the engine responded well under the load and never for an instant was the big car delayed as it ploughed through the yielding stuff.

The Leland Standard university at Palo Alto was visited the following afternoon, the route lying by way of the Soquel grade and Los Gatos. Long before this the tourists entered the region of the oaks, and the road was wondrously beautiful all the way into the college city. Palo Alto is one of the prettiest towns in the state and the motorists lingered there as long as they could, loth to leave so restful a spot. Surely the founders of the greatest school on the Pacific coast knew what they were about when they selected this as a place for a memorial to their beloved son, which shall last for all time.

From Palo Alto a short run into San Francisco was made over the most superb road traversed on all the long journey. So far not a bit of trouble with car or engine had occurred to mar the trip, and the travelers fairly flew over the hard highway into the metropolis of the Sunset sea, where 3 days were passed before pulling out for Sacramento, and crossing the Placerville grade, which rises at one point to a height of 7,000 feet. At the time the car went through, the lowlands back of San Francisco bay were flooded and few people thought the machine would be able to get over the bottomless mud and water which covers the black earth of this section.

"You can't get through," said one wiseacre at Woodland, a little town through which we passed.

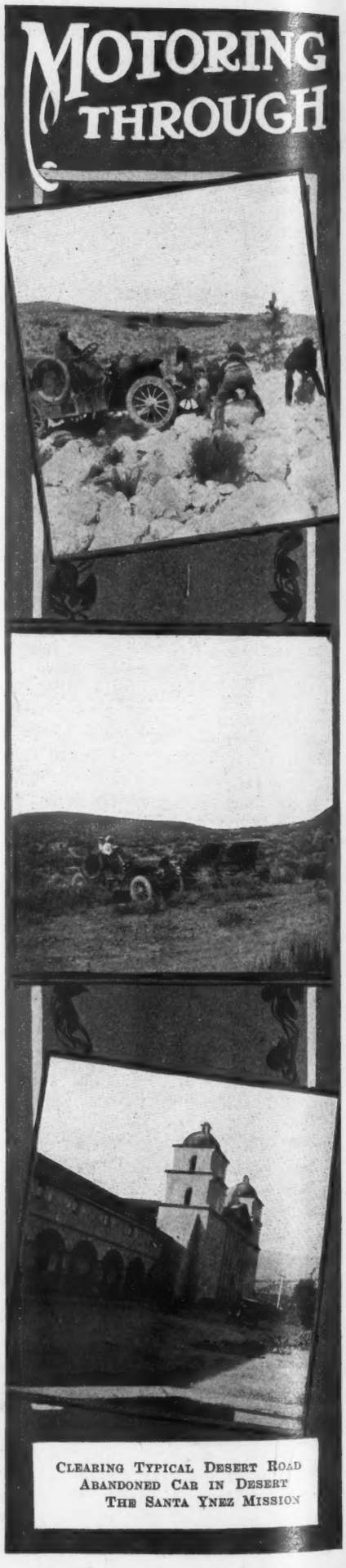
"We'll get through if there's a bottom," replied the man at the wheel.

"There is no bottom," was the rejoinder.

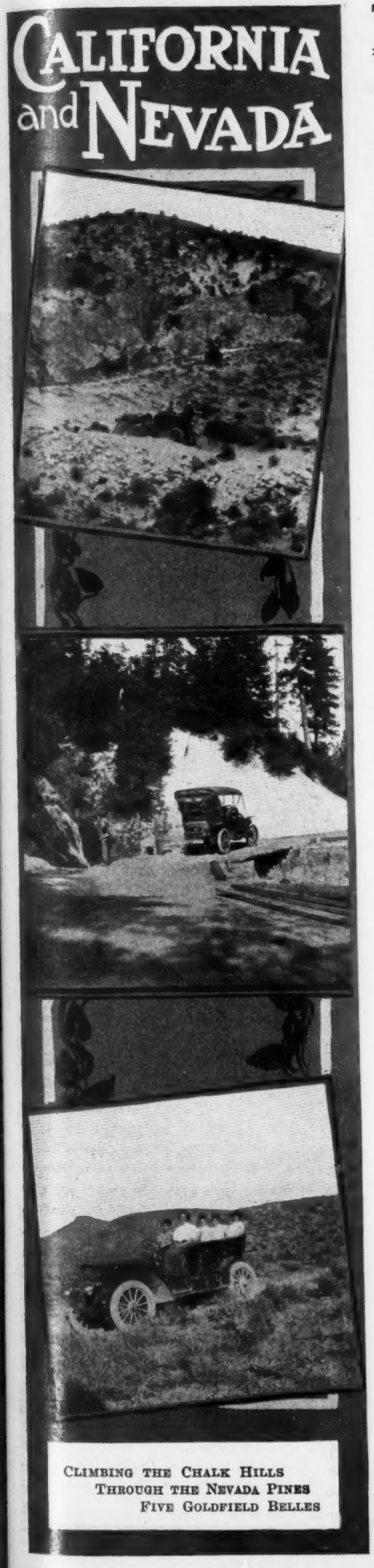
But the tourists did find bottom, and got through, reaching Sacramento with flying colors, although the car had a fight sometimes.

After 2 days at Sacramento they struck out for Lakeside, on the shores of beautiful Lake Tahoe, which is bisected by the California-Nevada line. The almost continuous climb up the stiff grades and through the towering hills was accomplished without trouble or incident worthy of record.

Some of the worst roads of the trip—sandy and hilly and washed out—were encountered on the day's run to Reno,



CLEARING TYPICAL DESERT ROAD
ABANDONED CAR IN DESERT
THE SANTA YNEZ MISSION



CLIMBING THE CHALK HILLS
THROUGH THE NEVADA PINES
FIVE GOLDFIELD BELLES

Touring Adventures Out of the Ordinary

where the tourists entered the real Nevada mining world and spent a day before departing for Ramsey, where they saw their first mine and incidentally ran into their first sandstorm. For mile after mile the sand blew like drifting snow in an old time northern blizzard, and often the air became so thick with the powdery particles that the tourists were almost compelled to light the lamps. Then would come a temporary lull; the driver would be able to see a few feet ahead of the car, and they would decide that they were soon to get out of the storm cloud, so on they would creep at a snail's pace. The road could not be seen and they had no idea of what lay on either side of the trail.

At length, however, they did pass out of the storm belt and then rolled over the hard, level floor of the desert, into Hazen at so good a gait that it was decided to go on to the next town before putting up for the night. This proved to be Fallon, a place of about 2,000 inhabitants, and a product of the remarkable mining discoveries in the near-by hills.

The greatest surprise of the trip occurred between Fallon and Fairview—65 miles away. Dropping down a slight incline from the average level of the desert, the car struck the dry bed of an extinct lake, hard as asphalt and level as a floor. Here is the place for the finest motor car race course in the world, and some day, if this section gains inhabitants in the next 10 years as it has in the past 3, races will be held which will set new records for the motor world. The lake bed lies in a natural amphitheater, and a 25-mile track could be built around it. If it were near a city it would be worth a fortune. Not a particle of dust rose as the car fairly flew across the lake bed.

There was a stop for lunch by the roadside and then a 16-mile run to Wonder. The night stop was made at East Gap, so called because it is the eastern entrance to a mountain pass 25 miles long. At the other end is West Gate. Through this pass the motorists dashed over a hard road, rising by steady grades to the hills that wall in the pass and dropping by equally easy stages to the floor of the long, narrow basin which constitutes the pass. An object of interest and speculation on the way was a broken-down car stripped of all its furnishings, from engine to nameplate. About all that was left was the frame, tonneau and the wheels, from which the tires had been removed. The spokes had sunk deep into the sand and lizards were playing on them, while the ever-present house finches, or linnets, had made a nest in a hole in the back of one of the seats.

Seventy-five miles in the hot morning and mid-day air took the adventurers through the pass and out on to the rolling mesa in which Goldfield is situated. On the way they passed through Tonopah, which is entered by a strip of sandy road that is about enough to stall almost any car and make the motorist congratulate himself if he is able to pull out.

After they had been in Goldfield a few hours the accommodations were found to be so good that they stayed there 4 days and made the town the central point from which trips were made into the surrounding country. Most of the excess baggage was gotten rid of and Rhyolite, 65 miles away, was chosen for the first trip. The town is reached over what is called a "gear wheel" road. It has a fair surface, but the roadbed is a series of small, shallow undulations that make riding very unpleasant when the machine is going slowly. Driving at 8 miles an hour over this road the travelers thought the car was being pounded to pieces, but upon increasing the speed to 25 miles an hour, this jolting was entirely eliminated and the road seemed perfectly level.

Manhattan was visited by way of Tonapah, which took them over 65 miles of the same kind of road, 25 of it being through the barren desert mountains, every foot of which has been prospected thoroughly and the greater part of it staked off into claims, some of them incredibly rich in gold. Manhattan is one of the most prosperous camps of the desert.

Despite the many miles of gruelling grind to which the machine had been subjected, it was still in good shape, barring a pair of tires which were put on at Goldfield about a week later. Such country as is shown in the accompanying photograph of men lifting great boulders out of the way is common in the creek beds which have to be crossed often in the desert. The motor car that can stand the driving, day in and day out, over such roads must be a pretty stout piece of machinery.

While in Goldfield the car was loaned 1 day to a bevy of desert maidens for their first ride. The big vehicle, driven by so small an engine, was a great novelty to the girls, who had lived most of their lives in the desert. But they were not afraid, and could not go fast enough. The speed mania seems to be born in Americans, not cultivated.

Runs were also made to Cold Springs, so named because there is not a thing cold in the place; to Miller, Siding, Goldfield Junction and Diamondfield, so called because nothing resembling a diamond was ever found there. After another week of traveling about among the mines the car was left at Goldfield and the tourists returned home on the train, browned and sunburned to the color of Pah-Utes, and with appetites like harvest hands.

The Readers' Clearing House

EDITOR'S NOTE—In this department Motor Age answers free of charge questions regarding motor problems, and invites the discussion of pertinent subjects. Correspondence is solicited from subscribers and others. All communications must be properly signed, and should the writer not wish his name to appear, he may use any nom de plume desired.

TROUBLE OVER STARTING

ST. LOUIS, MO.—Editor Motor Age—Why does my two-cylinder 5 by 6 motor with regular carbureter not always start with the first turn or two of the crankshaft? This is particularly true in cool weather when it is very hard to get started. After priming there is no trouble at all starting, and when it starts running it works still better. All parts of the motor are in good condition, with valves set properly. The compression is good and the battery strong.—Trouble.

Your motor does not start in cold weather with the first turn of the crankshaft because there is not a suitable mixture in the cylinders. When your motor stopped the cylinders were warm and filled with a charge, but as they cooled the gasoline condensed and settled in drops or globules on the piston head or cylinder walls; and instead of a mixture of air and gasoline vapor each cylinder contains air with condensed gasoline. Before you can start it is necessary to volatilize gasoline into the combustion chambers so that it mixes properly with the air. This is readily done by priming. This is no fault of the motor. This can largely be avoided by covering the bonnet and radiator with a robe or other covering. A gasoline motor requires heat, up to a certain point, because the hotter it is the more readily is the gasoline vaporized and the more efficient the motor.

MOTOR MISSES BADLY

Harpers Ferry, W. Va.—Editor Motor Age—Will Motor Age kindly advise me what is the trouble with my 1908 model S Ford roadster. The first carbureter I had was a Kingston, which I changed. I put on a 1908 Holley, with dash adjustment, and it worked all right till lately, when the motor commenced to run with a rather violent vibration at each explosion and a great quantity of foul smoke issued from the muffler. I worked with it, but could not get it right, so bought a new Holley, which has proven but little better than the old one. All four cylinders fire regularly, but not rhythmically, there being a vibration at each explosion that is both seen and heard, and the power is not there as it should be. The smoke from the exhaust indicates that the mixture is not right. I think every possible adjustment has been tried, but it won't get right. There seems to be, too, a rather unusual quantity of oil emitted about the push rods or valve stems of the two rear cylinders. Awhile ago the retaining pin on the pump paddle wheel dropped out and the engine ran without proper circulation of water. It got pretty hot, and when cooling off I heard several cracking sounds. Might there be any broken piston rings? I can see no evidence of cracks externally. I believe the trouble is with the carbureter, or something immediately connected therewith. Running on the high gear, the power impulses are plainly felt, but coming downhill with the power cut out the car runs smoothly and quietly as usual, the regular "spit-spit-spit-spit" of the piston compressions being the only sound. The motor will not throttle down to quiet low speed. It runs too fast and too noisly, or not at all.—W. L. Erwin.

Your trouble is due to an accumulation of carbon in the cylinders, and Motor Age advises that you remove the cylinders, scrape all carbon from the cylinder and piston heads and valve chambers; remove all the old oil from the crankcase and any sediment which may have become deposited therein by flushing it out with kerosene; grind the valves if necessary; then replace the cylinders, and before starting the motor, see that just the required amount of fresh, clean oil of a good grade is placed in the crankcase and that the feed from the oiler is properly regulated. You will then find that the carbureter may be easily and satisfactorily adjusted and that the motor will run almost as well as ever. If any piston rings are broken the fact will be revealed when the cylinders are removed, and although the cylinders may have been scored when the engine heated up on account of the poor water circulation, Motor Age believes this is not the case. On replacing the intake manifold and its connection to the carbureter be sure that a perfectly air-tight joint is obtained. While the motor is dismantled it is advisable to examine the crankshaft camshaft and connecting rod bearings and take up any lost motion that may be found. Lost motion, brought about by the general wear, is the cause of noises which gradually arise in a motor, and the only practical cure is to take up the lost motion.

VALVE-LIFTER NOISE

Chicago—Editor Motor Age—Will Motor Age kindly answer the following questions: I have a high-grade car with four-cylinders T-shaped. 1—If there is too much play between the valve stem and pushrod, will it cause a tap? In picking up speed on a low as well as a partially advanced spark, I notice a squeaking noise apparently on the exhaust side. What is the cause and remedy? 2—Is there any material difference in gasoline? What should the best grade test with hydrometer and about how many miles city work should I get out of my 30-horsepower touring car per gallon? 3—Does greater number of revolutions of crankshaft per minute mean increased power? Explain. 4—What is meant by piston displacement and what is the formula used in figuring same? 5—Recently I cleaned my cylinders with a carbon remover and after letting the car stand the prescribed time, had considerable difficulty in cranking it, in fact, tried it for an hour or more before I was successful. What causes this? Could it be the carbon got on the valve seats causing loss of compression? What would cause the engine to back-fire after so cleaning and when not overheated? 6—What is the best and surest method of testing compression? 7—The paint all around the muffler burns off on end where the exhaust pipe leads to it. How can I make the paint stick? 8—What is the formula for figuring piston displacement and area? How does Motor Age figure cold compression of the motor in pounds? 9—In road tests, how is the ton mileage basis figured? What other basis is used and how figured? 10—Referring to the answer to Mr. Willard in Motor Age, issue June 17, in which it was stated, "It is customary, also, in motor with long strokes to use a higher compression than those in which the bore and stroke are practically the same." Explain what is meant by "to use a higher compression."—E. S. V.

1—Yes. Too much play between the valve stem and push rod will cause a tap. This may be demonstrated by taking an ordinary business card, folding it once or twice to obtain the required thickness and slipping it between the valve stem and push rod while the motor is in operation. The cause of the squeaking noise is difficult to determine from the symptoms given above; but as most all squeaking noises are caused by friction which may be rendered harmless and noiseless by proper lubrication, it would be advisable to oil all moving parts around the exhaust side of the motor, or in fact around the entire car, for the exact location of a squeak is often hard to find. However, air leaks, and leaks about the valve plugs, or inlet or exhaust pipe connections, may also cause a squeaking sound, especially where rubber gaskets are employed. Squeaks sometimes develop where the body is connected to the dash, and are most audible when the vibration of the motor is excessive, as when heavily loaded at slow speed.

2—There is no material difference in the gasoline generally used except that some grades are more volatile than others. If gasoline with a specific gravity of .76 de-

grees, was obtainable, its use would greatly facilitate starting of the motor when cold. The gasoline generally sold as the best grade should test about .65 degrees. as to the mileage one should get out of a gallon of gasoline, this varies greatly with the design of the motor, the carbureter adjustment, and the ability of the driver. A good average for a 30-horsepower car for city work is 12 miles to the gallon.

3—Yes. The greater the speed of the crankshaft, up to the limit of mechanical efficiency, the greater the horsepower developed. The more revolutions per minute that a crankshaft makes, the greater the number of working strokes, and the greater the amount of energy stored up in the flywheel.

4—By piston displacement is meant the volume of space displaced by the piston in moving from the outer to the inner end of its stroke; and it may be figured from the following formula: Let D equal the cylinder diameter in inches, S the stroke in inches and N the number of cylinders; then $D^2 \times .7854 \times S \times N$=Piston Displacement.

5—It is quite possible that the loss of compression was due, as you suggest, to loose lumps of carbon becoming foul on the valve seats. The back fire was most probably due to scales of carbon, which had been loosened up but not entirely removed by the carbon remover, and becoming incandescent had caused preignition.

6-8—The best method of testing compression is by means of a gauge used for that purpose. It is inserted into one of the holes generally occupied by the spark plugs; the motor is then turned over by hand and the number of pounds compression per square inch is registered on the gauge.

9—Ton mileage is figured by multiplying the weight of the vehicle in pounds by the number of miles it travels and dividing by 2,000. For example, if avehicle weighing 3,000 pounds traveled 200 miles, its ton-mileage would be 300.

10—In stating that it is customary to use a higher compression in long-stroke motors, it is meant that, when the bore remains the same, by lengthening the stroke a greater volume of gas may be compressed into the same space as in a short-stroke motor, thereby increasing the compression.

GROUNDING THE POSITIVES

Clifton, Kan.—Editor Motor Age—Will Motor Age, through the Readers' Clearing House, kindly state why it is important that the positive elements of storage and dry batteries be grounded, and not the negative?—L. Pfister.

It is generally conceived that the negative terminal of a battery should be grounded, instead of the positive elements as you state; and in all wiring diagrams it is customary to show the ground wires connected to the negative terminals of the batteries. The object in so connecting up a battery is chiefly this: As the current always flows from the positive pole of the battery through the system and back to the negative pole, it is thought that in leading the current direct to the coil less resistance is encountered, and therefore a stronger secondary current is induced. In most cases, nowadays, however, the ground circuit is just as complete as that of the positive wire, and in such cases it is immaterial which wire is grounded, in fact, it is claimed that to change the wires around occasionally is beneficial to the contact points of the vibrators.

TURNING ON STREETS

East Chicago, Ind.—Editor Motor Age—Regarding turning cars on a street, the wonder is why when intending to make a turn in the street, after standing at the curb, it is invariably done by a forward start, when it does seem that a driver should realize that the turn can be made much better, more safely, with less room and less interfering with travel, by backing around first. To never start forward, but always backward to make a turn should be, in my opinion, one of the rules in operating a car.—A. Wickey.

MOTOR OVERHEATS ON ROAD

Eleroy, Ill.—Editor Motor Age—I have a 1909 L D Maxwell runabout which has been run only 350 miles. On a short run of 2 or 3 miles, on high gear with spark advanced to the limit and going from 15 to 20 miles per hour, the water boils. I have always used soft water and have tried forcing the water through with a hose, which has not helped any. The water boils very easily; in fact, the first time I ran the machine. Can Motor Age tell me how to remedy this difficulty?—S. S. T.

Overheating may result from a number of causes, among which the most common are: Lack of lubrication, poor water circulation, too rich a mixture from the carbureter, poor circulation of air through the radiator or about the motor, and carbon deposits in the cylinders. The fact that your car was disposed to overheat the first time you ran it, leads one to believe that an overrich mixture has been used. Too rich a mixture may be detected by the pungent odor of unburned gasoline in the exhaust or by black smoke. This may be the cause of your trouble. To test the lubricator loosen the oil leads at the cylinders and run the motor for about a minute and see if the oil flows. If sight feeds are provided on the oiler it will not be necessary to loosen the leads. The water circulation may be tested by loosening the lower connection of the radiator to see if the water flows freely therefrom; a stream of water should be directed through the waterjackets and connections of each cylinder individually; and when a steady stream of water is found to flow unobstructed through all parts of the system, make connections carefully to see that the inside edges of the hose are not ruffled by the edges of the metal pipes, and that there are holes of sufficient size in the center of all gaskets used. Also see that there are no folds or twists in the hose connections. Carbon deposits brought about by the use of too much oil, oil of an inferior grade, or an overrich mixture will also cause a motor to overheat; having run your car but 350 miles, however, this would hardly be the cause of your trouble. It may be possible that the revolving segment of your timer has come out of adjustment and that you are unconsciously running on a retarded spark; this would also cause overheating.

OPENING EXHAUST VALVE

LaSalle, Ill.—Editor Motor Age—Through the Readers' Clearing House will Motor Age inform me at what position should the piston be when the exhaust valve opens to get full power from the explosion?—E. G. Newman.

This is a debatable point with engineers. The explosive force within the combustion chamber gradually falls to atmospheric pressure and so its usefulness is short-lived. It is customary to open the exhaust valve 40 degrees before bottom dead center, or before the piston has reached the end of the explosion stroke. With some designers this opening lead is reduced to 10 degrees. Experiments have proven that the majority of the power from the explo-

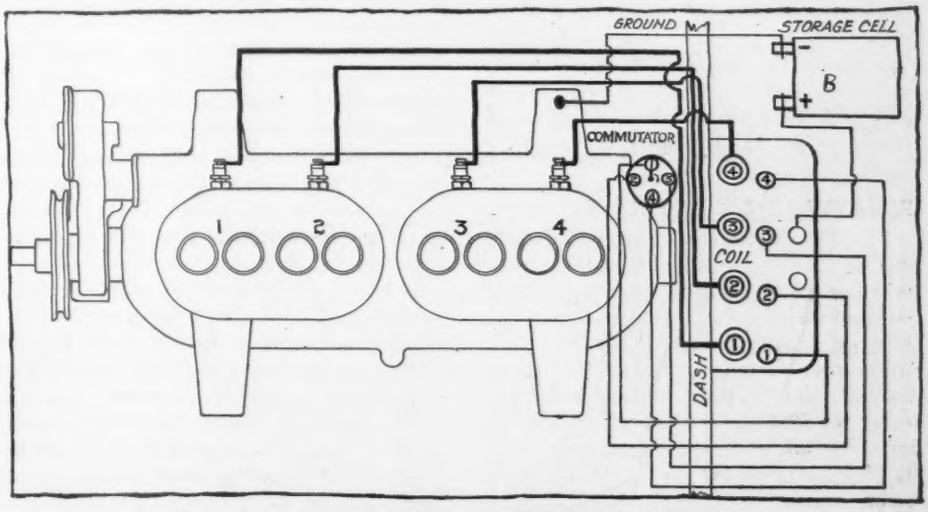


FIG. 1—WIRING DESIGN FOR FOUR-CYLINDER MOTOR

sion has been spent by the time 120 to 140 degrees on the total explosion stroke of 180 degrees have been traveled by the piston.

POSITION OF PRIMING CUPS

Madison, S. D.—Editor Motor Age—Is it all right to put a priming cup in the intake manifold of a four-cylinder engine, there being no priming cups in the cylinders?—H. H. F.

It will not be as satisfactory to place the priming cups in the manifold as in the cylinders. The gasoline injected into the manifold may run down toward the carbureter and so make starting as impossible as if priming were not resorted to at all. Where priming cups are used in the cylinders the gasoline is injected direct into the combustion chamber where it will be volatilized in close proximity to the spark. A Dorris car with priming cups in the intake manifold came under the writer's attention a year ago, and in cold weather starting was very difficult even after priming.

OBJECT OF OVERLAPPED VALVES

York, Pa.—Editor Motor Age—Being a reader of Motor Age, I would like answers to the following questions through the Readers' Clearing House: 1—What are the advantages and disadvantages of overlapped valves in a four-cylinder gasoline motor? 2—Give a list of some of the best makes of cars using overlapped valves, if there are any makes using such timing.—Norman R. Lallatin.

It is easier to carburet with overlapped valves than without them. Where valves do not overlap, there is a time between the closing of the exhaust and opening of the intake when a partial vacuum is started within the cylinder and immediately the intake valve is opened, a very strong pull is exerted on the mixture in the intake manifold and in the carbureter. During the forming of the partial vacuum there was no pull on the gases. This going from one extreme to another makes the carbureter problem a very difficult one. In tests with a compression meter on the intake manifold the meter pointer has a very slight oscillation, not more than 25 degrees, with motors with overlapped valves; but with those not overlapped the needle oscillates through an arc of 120 degrees and sometimes more. The Packard and Apperson are two examples of overlapped valves.

RELATIVE FUEL ECONOMY

Ney, O.—Editor Motor Age—Will Motor Age inform me what is the rated number of miles on a gallon of gasoline? Which will go farthest on a gallon, a one, two, four or six-cylinder car?—Reader.

There is no definite rating for mileage on a gallon of gasoline. Some of the $850 to $1,000 cars make 17 to 25 miles to the gallon on good roads. Touring cars costing $2,000 to $3,000 generally average 14 to 16 miles to the gallon. The same make of car with different drivers has variable fuel consumptions. One driver uses a very early spark, in fact, drives nearly always on the spark, with a well-closed throttle and so uses less fuel when compared with a driver using a medium spark and an open throttle. As to which, a one, two, six or four will go farthest on a gallon it is impossible to say. A cylinder beyond a certain diameter loses its thermal efficiency, and should a one-cylinder car exceed this limit it would not be nearly so economical as a multi-cylinder type. In economy tests six-cylinder cars have defeated fours one time, only to be defeated later. Economy is largely a question of carbureter adjustment and driving skill.

DURYEA'S ROTARY VALVE

Reading, Pa.—Editor Motor Age—Regarding the rotary valve, I am sorry not to be able to say more definitely what are its good and bad points. We made but a few of them and this was shortly before the company quit business, so did not get the chance to push the experiment to a proper finish. The first one was made with a slight taper to each valve and fitted by grinding each valve into its bushing. A lock nut was fitted at each end so that the valve could be held in the bushing just as it should be. This made an almost perfect job and permitted the cylinders to warp if they should do so, but the bother and cost of the water connections I did not like. This engine was fiercely abused and made the fastest trip to Pottstown, 20 miles away, ever made by one of these rigs. In fact the universal experience was that the engine was fine for speed. The first valves showed practically no wear. The original tool marks that were not ground off at the fitting did not wear off. The car was run until the cylinders were dry and stopped the engine, but the valve was well oiled and ready to go again. The final form consisted of a single shaft with ports cut in the sides of this shaft. Bushings were fitted to this straight shaft and these were clamped into the cylinder casting. The shaft and bushings were ground to fit each other and we were not situated to grind the hole in the cylinders, with the result that the bushings did not fit properly and there was more or less leak around the bushings. Clamping the bushing tighter would make the shaft bind and run hard, and the leak around the bushings would let out the compression. There was not much leak through the valve proper. It is my belief that properly made up this form of valve can give fine satisfaction. It was placed on the lower side of the cylinder where some oil from the piston went into it at each stroke. Thus it was always oiled. It was hollow so that the cooling water went into it before going to the engine and thus the valve was kept cooler than the engine proper. The surfaces of the engine which gripped the bushings were water-cooled, and being at the bottom were never exposed to steam, but kept much cooler than if they were on top. The cylinders were cast en bloc and very stiff in both directions. These conditions seemed to insure perfect action and long life to the valve. The bushings could have been split for adjustment if necessary, but this was never done. The pressure against the exposed surface was but a fraction of what the crankshaft has to bear, so it would seem the valve should not wear out. Being always oiled, it generally packed well except at very low speeds. The oil film would be forced out of the space if exposed to pressure long enough. It ran noiseless like a steamer and the opening and closing were more rapid than with poppet valves. It ought to make a good racing engine. The timer and water pump were fitted to the valve shaft so there was but little complexity. I do not think the last word has been said on rotary valves, but like the steam turbine they must be made right.—Charles E. Duryea.

DRIVER NOT ASLEEP

Indianapolis, Ind.—Editor Motor Age—In reading a recent issue of Motor Age in regard to the accidents at the Indianapolis speedway, I noticed one accident in particular, Marmon car No. 17 where Motor Age stated that Driver Bruce Kiene was asleep at the wheel. Now I am in a position to know that he was not asleep, and I think Motor Age did him a great wrong, as Motor Age has placed him in jeopardy by publishing such as that unless Motor Age knew what it was publishing. Now as I was driving No. 17, I would like for Motor Age to rectify that mistake.—B. E. Kiene.

The Motor Age report of the speedway opening stated that it was "reported" the driver was asleep, and not stated positively.

REPAIRING ALUMINUM

Birmingham, Ala.—Editor Motor Age—Will Motor Age kindly advise what is there, if anything, to stop cracks in an aluminum crankcase?—J. T. Cooper.

Oxides form on the surfaces of aluminum almost instantly and soldering is quite out of the question unless the oxides are brushed off, with a metallic brush, under enough heat to melt the solder. This cannot be done under the conditions governing some repairs, but a man of sufficient skill may be able to tin the surfaces to be joined, using aluminum solder for the purpose, and with the surfaces coated with solder, the oxides cannot then form, and the process of joining will be possible. In the autogenous welding process, the only reason that it works, when it is desired to repair aluminum parts, is because the oxided surfaces are burned away and new material is run in so quickly that oxides do not interfere with the process. Even autogenous welding, however, is attended with some difficulty in working aluminum, and whether the repair is made by soldering, or autogenously, it is largely a matter of skill of the operator.

Manufacturers' Communications

IN DEFENSE OF SPEEDWAY

INDIANAPOLIS, IND.—Editor Motor Age—Much has been said and a vast deal has been written about the 3-day meet at the Indianapolis motor speedway—"the Roman holiday." I have just laid down an article that violently said, in most emphatic terms, that "climatic heat, dust from the track and its inherent roughness which resulted in the physical exhaustion of the drivers" were the sole causes of the unfortunate casualties that marred the opening of this most brilliantly conceived and executed speedway. It has been freely and widely said that the strain of driving a 100, 200 or 300-mile race at the so-called terrific speeds that were incident to this race meet were beyond the powers of human endurance and that to safeguard both the public and the drivers, the drivers should be changed every 50 or 100 miles or that races of over 100 miles in length should be abolished.

That the accidents happened cannot be gainsaid, but to one who lived inside the paddock during the races, knew what was happening to the machines, was acquainted with and understood the temperament and physical capabilities of the men, and was in intimate touch with all the incidents of the meet, the analysis of the results that places the burden on such and similar causes as those cited above seems to be incorrect and misleading. To the onlooker standing idly in the sun during those 3 days, it was hot. The heat, however, had no effect on the drivers. The members of one of the best-organized teams at the meet wore sweaters while driving and commented afterwards that they were glad they had them. While the dust was bad it was not sufficient to in any way interfere with accurate and precise driving. Though after a number of hours drivers' eyes began to smart from the dust, it was to no such extent to in any way suggest blindness. One dramatic and widely blazoned case of dust blindness came directly under the writer's notice. A machine was rumored overturned on a remote part of the track. The writer promptly repaired thereto and found the derelict car right side up and the driver and mechanician struggling with the bonnet. After this and other impedimenta were removed it was seen that a vagrant connecting rod had made a hole in the crankcase that one could almost walk through. Shortly after, the driver—now blind from dust—was led by the grandstand—which was a roundabout way—to the hospital, where an uncannily wise physician gave him a glass of water to drink—and thereby restored his eyesight.

The track was rough, they say, and brought the drivers to a state of physical exhaustion. After the longest races some of the drivers and mechanicians promptly reported to the pits to help remove the supplies for the night, one naively remarking that to those not actually in the race it must be rather tiresome to keep track of it and wishing to give the pit attendants a chance to leave for their evening meal and relaxations. This, which was said in perfect good faith by a driver in the longest race, does not sound like physical exhaustion.

It was said, before the completion of the speedway, by those intimately familiar with available cars in this country, that there were but few that could go wide open on it for a couple of hours without serious distress. This prophecy seems to have been fulfilled. The speedway presented conditions novel to this country. Road races have permitted high speeds on straights, but the numerous turns have brought constantly recurring relaxation to the car and motor—though not to the driver—and the nature of mile circular tracks has prevented wide open throttle conditions. But the speedway conditions were such that permitted a car to continuously develop its highest possible power until, in the vernacular, it blew up. The curves at the speedway were no deterrent. In fact, due to firm surface conditions on the curves, moderate-powered cars that could only do 55 to 60 miles on the comparatively heavy pulling on the straights would promptly jump up to 70 and 75 on the turns. The point is that after a car once started in the long races it had no rest or mercy until several hours later when the black and white-checked flag was waved at it.

Driving a racing car is a man's game and a peculiarly-constituted man at that. There are those who can drive a car at any speed it will go, 60, 70, 80 or 90 miles an hour around curves, dodge a bad point in a track, pass other cars, for hours with the nonchalance and assurance that a motorman will drive a street car around a corner on steel rails, and with no more fatigue—provided his confidence in his car keeps up. If his motor continues to run sweetly and every organ about the car functions properly he will drive surely and accurately as long as timers can stay awake to watch him. But if he discovers his radiator is losing water too rapidly, an alarming thump is developing in one cylinder, an unnatural and noisome sound is coming from his rear axle, or an undue amount of play is developing in his steering gear he will be, unless an unusually phlegmatic sort, worn out in an amazingly short time. If his motor stops on him in a race and he has to crank his heart out to start it, the nervous fear that he won't be able to start it will wear him out long before the physical exertion will exhaust him.

The drivers were merely a vehicle of expression. If the track had been smoother, speeds would have been higher and results not much different. It was not the track or the drivers who were not ready. But the majority of the cars were not ready for the terrific break-down test that the long races afforded. Weak points in construction that reveal themselves more or less as accidents in normal service loom up with a prominence in sustained high speed work—only possible on such a place as the speedway—that demand instant attention from the factory. During the meet many cars fell by the wayside from causes that constructors had heretofore considered sufficiently safeguarded.

If the coterie of energetic and public-spirited men back of the Indianapolis motor speedway have the success their daring and enterprise deserve, the breed of American motor cars will be greatly bettered and the normal user will get a car from those makers who intelligently use the speedway, whose freedom from trouble and distressing accidents from apparently unexplainable causes will be remarkable even in this day of excellent motor cars.

When the cars are ready to do their 300 miles in 5 hours as sweetly as they would slip over a boulevard, roughness of the track, dust blindness and climatic heat will not be spoken of. A 5-hour race will be an incident, not a Roman holiday.—Howard Marmon.

WATCH THE WHEELS

Chicopee Falls, Mass.—Editor Motor Age—Many motorists permit the wheels of their cars to get out of alignment and because it is not noticeable and there is no great racking or discomfort, they do not go to the effort and expense of having the wheels trued up. This disalignment is frequently caused by skidding or striking an obstruction with the front wheels so that the steering knuckle is bent, and while it may not be universally known, wheels that are thus thrown out of true will wear out tires considerably faster than when in proper shape. Experts of our company have found this to be a fact in many instances. When wheels toe in or toe out the stress naturally falls to one side of the tread instead of being directed to its center. This causes unequal strain on the sides of the tire which cannot but help damaging the fabric as well as the rubber.—Fisk Rubber Co.

Motor Car Development

THE Pierce-Arrow Motor Car Co., Buffalo, N. Y., will build nothing but six-cylinder cars for 1910. As in the present season, so next; there will be but three Pierce-Arrow models, all of which have been on the road for some time and two of which models competed in this year's Glidden and Hower contests. The models are designated respectively six-36, six-48 and six-66. All are alike in general design and differ only in body capacity, wheelbase and tires.

Although the main Pierce characteristics of this season are everywhere apparent in next year's cars, nevertheless the company has made a great number of minor changes without in any wise affecting the general layout of the car. One change is that twin-cylinder castings are used in all three models, the six-66 having used individual castings during the present season. Another change, and shown in Fig. 9, is the use of three-quarter elliptic rear springs on all models, whereas this type of spring was only used on the six-36 during the present season. To accommodate this spring the side members of the frame have been dropped at F so as to maintain a low body carriage, and the half upper leaves S are securely anchored to a broad gusset plate on the frame by double shackles and a center bolt at the end. In order to maintain the same level in the chassis, after adopting the three-quarter elliptic rear spring and drop frame, the front springs FS have been made with less arch.

Wheelbases Lengthened

Closely associated with the spring situation in these cars is the lengthening of the wheelbases in all three models, the six-36 from 119 to 125 inches, the six-48 from 130 to 134.5, and the six-66 from 135 to 140. To compensate for the increased length of the car, the I-beam front axles in all three models have been strengthened by the use of heavier flanges. These axles continue to be characteristic of the Pierce in that they are an inverted arch and entirely free from any sharp angles.

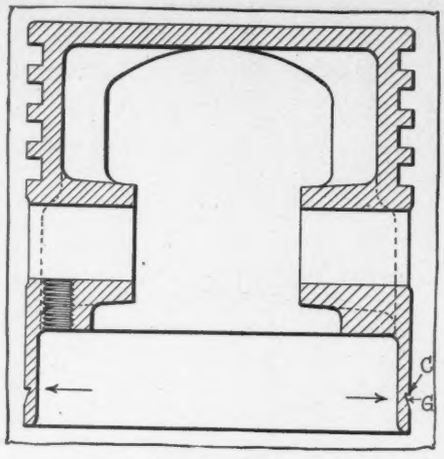


FIG. 1—NEW PIERCE OIL GROOVE

Not to be overlooked in the running gear changes is the employment of short-series Timken roller bearings for the front wheels and the outer ends of the rear axle driveshafts, at both of which places the annular ball type has heretofore been employed. Fig. 2 illustrates the fitting of these bearings to the front axle spindles, there being two races respectively marked T for supporting the wheel on the spindle. In the rear axle design, Fig. 3, there is but one race, also designated T, which is interposed between the driveshafts S and the axle housing. In Pierce cars the rear wheels are keyed to the driveshafts at K, the axle not being of the floating type. Throughout the remainder of the axle, Fig. 5, annular ball bearings are employed, races B supporting the differential within the axle housing H, the driveshafts S being keyed to the differential gears. The pinion shaft PS is carried on two races C of this type of bearing, the whole being a construction used for many seasons on Pierce cars and one in which rigidity has been sought.

Resume of Motor Improvements

In a resume of the motor improvements attention is first directed to increasing the bore in the six-36 from $3\frac{15}{16}$ to 4 inches, and leaving the stroke at $4\frac{3}{4}$ inches, as

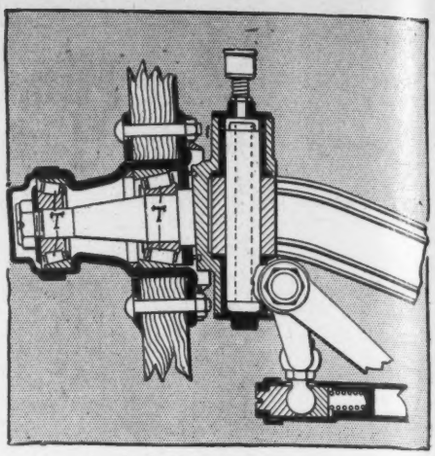


FIG. 2—TIMKEN BEARINGS ON FRONT WHEELS

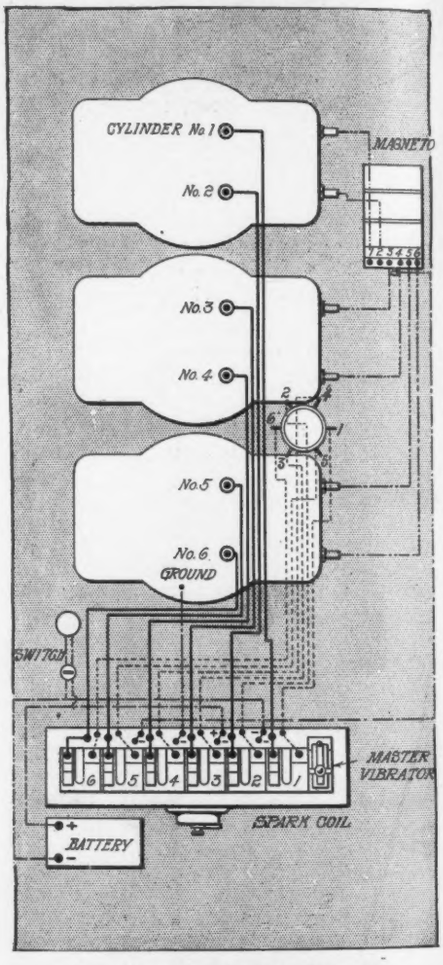


FIG. 4—PIERCE WIRING DIAGRAM

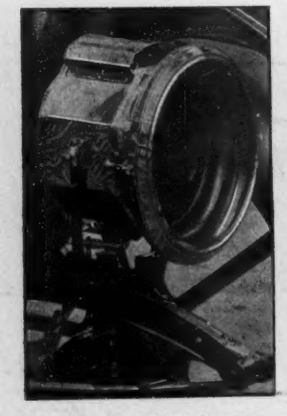


FIG. 6—NEW PIERCE HEADLIGHT

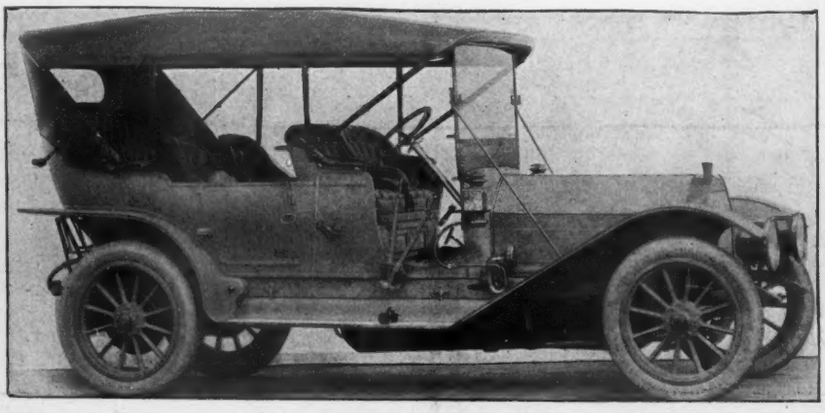


FIG. 7—PIERCE 1910 MODEL SIX-66

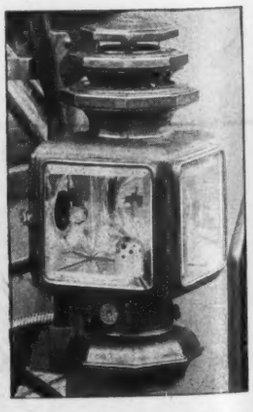


FIG. 8—COMBINATION PIERCE DASH LAMP

Three Pierce Models

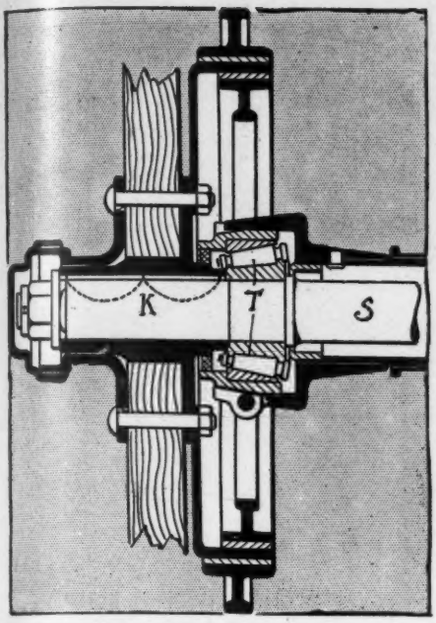


FIG. 3—TIMKEN REAR WHEEL BEARING

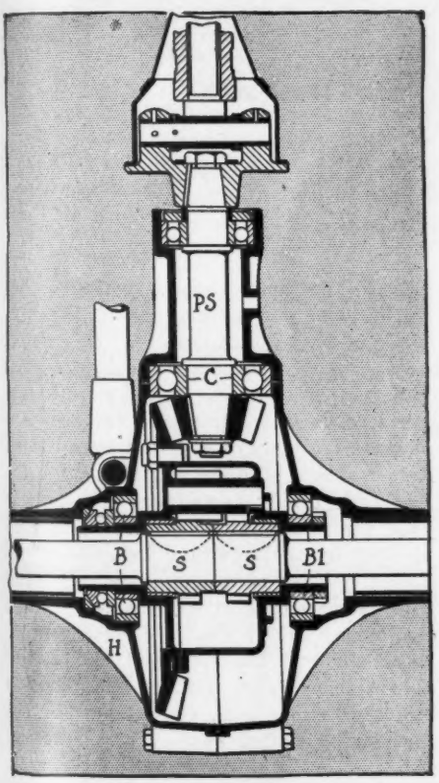


FIG. 5—PIERCE DIFFERENTIAL BEARINGS

LEADING 1910 PIERCE CHARACTERISTICS

Only Six-Cylinder Models
Twin-Cylinder Castings on All
Longer Wheelbases Throughout
Larger Sized Tires Fitted
Roller Bearings for Road Wheels
Dropped Frame on All Models
Three-quarter Elliptic Springs
Improved Oiling Arrangements
Larger Motor Sizes
Increased Brake Surfaces

formerly. In the six-48 the measurements remain the same, 4½ by 4¾ bore and stroke, respectively. In the six-66 the bore has been raised from 5 to 5¼ inches, the stroke remaining at 5½. The horsepower rating of these three motors is of interest. The A. L. A. M. formula is based on a piston speed of 1,000 feet per minute and is given in the following table. According to this the number of revolutions the six-36 and six-48 motors would be 1,262 revolutions per minute, and for the six-66 1,090 revolutions.

	Six-36	Six-48	Six-66
A. L. A. M.....	38.40	48.6	66.20
Beaumont, 750 rev...	30.48	43.32	63.72
Beaumont, 1,000 rev..	40.68	57.72	84.90
Royal Automobile Club.	46.26	51.75	69.90

The present increasing of the bore on two of these motors brings them nearer that square type in which the bore and stroke are the same.

Change in Oiling System

An improvement in the oiling system is shown in Fig. 1, in which a peculiar shaped oil groove G is turned in the piston near its bottom. This groove has a right-angled corner C at the top, but tapers gradually at the lower side. Its object is to remove oil from the cylinder walls rather than to carry it into them. At the bottom of each cylinder is a baffle plate with an opening through which the connecting rod works, the baffle plate being to prevent an excess of oil being thrown into the cylinders. This oil groove is to still further regulate the amount of oil on the cylinder walls. The company claims that the adding of this ring has increased 50 per cent the mileage obtainable on one charge of lubricating oil. In all other respects the Pierce lubricating system employed for the last 7 years is retained. It is illustrated in Fig. 11, and consists of a gear oil pump OP driven from the camshaft which elevates the oil from the reservoir R into a gravity tank GT carried above the cylinder heads. From this tank oil leads connect to all seven of the crankshaft bearings. The crankshaft journals are drilled, as are the throws of the shaft, so that the oil is delivered by centrifugal force through the crankshaft to the lower connecting rod bearings. The overflow from these forms a mist which reaches the cylinder walls through the openings in the baffle plates at the bottom of the cylinders. Within the crankcase the splash system is not used, the mist from the bearing overflow being relied upon solely for cylinder and piston lubrication. The oil once used is filtered into the reservoir R and re-circulated, so that it is not necessary to replenish the supply more than once every 250 miles.

Power Pump for Tires

A leading novelty in conjunction with the motor is the fitting of the Spencer power air pump for inflating the tires. This is a special two-cylinder pump made to meet the requirements of Pierce-Arrow cars and is driven from a bronze pinion G mounted on the pump shaft. This pinion meshes with a gear two and one-half times its diameter on the pump. The pinion G is retained in its position on the pumpshaft by a ball-and-spring lock and is designed to be moved in and out of mesh with the pump gear by hand. When inflating tires the motor speed is from 300 to 600 revolutions per minute.

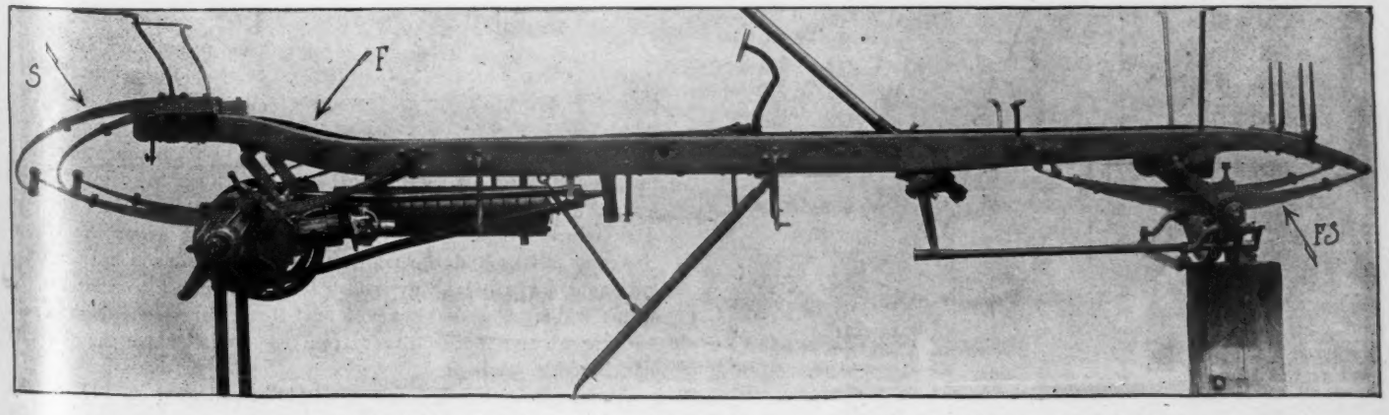


FIG. 9—PIERCE MODELS ALL USE DROPPED FRAMES AND THREE-QUARTER ELLIPTIC REAR SPRINGS

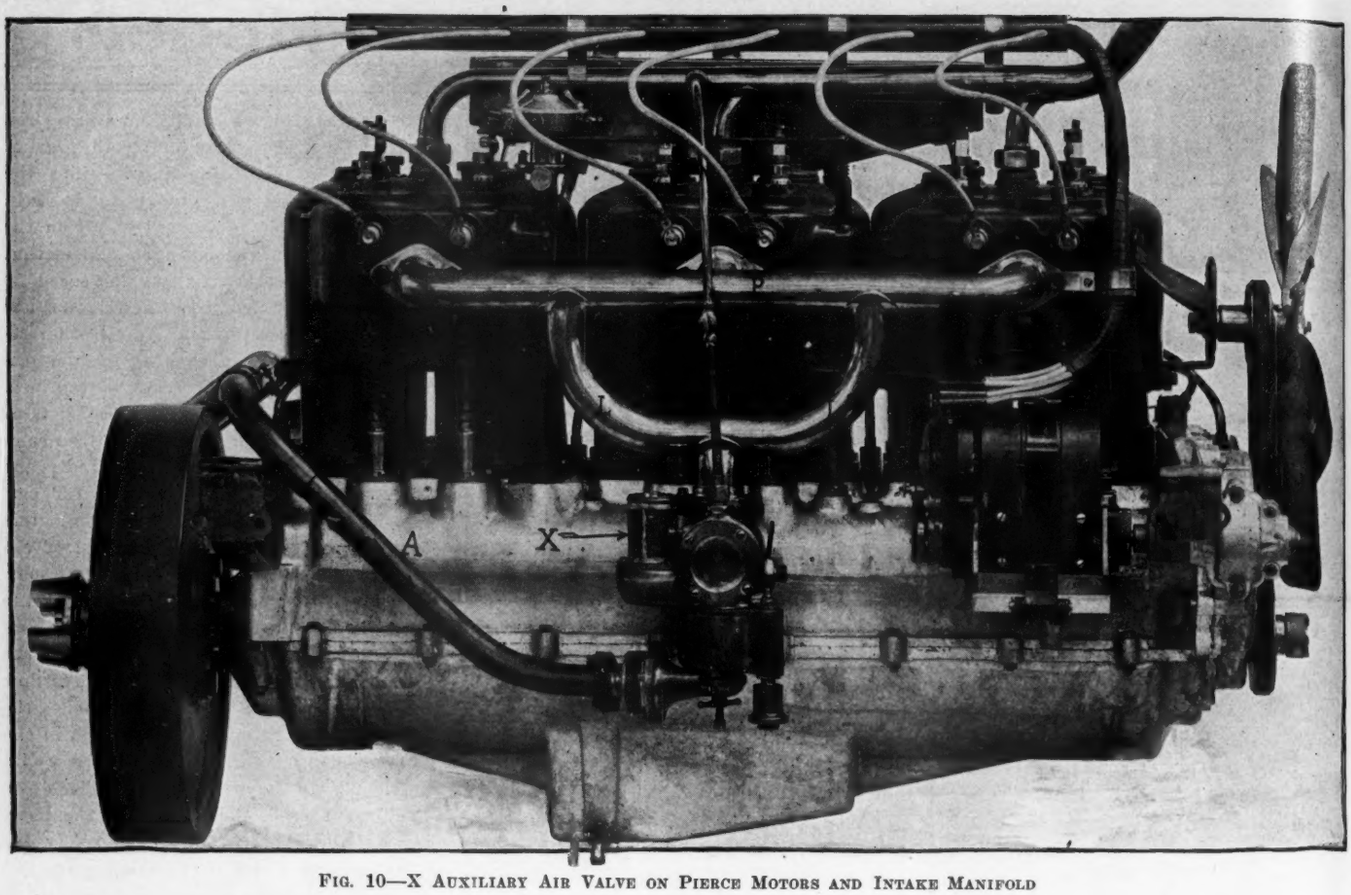


FIG. 10—X AUXILIARY AIR VALVE ON PIERCE MOTORS AND INTAKE MANIFOLD

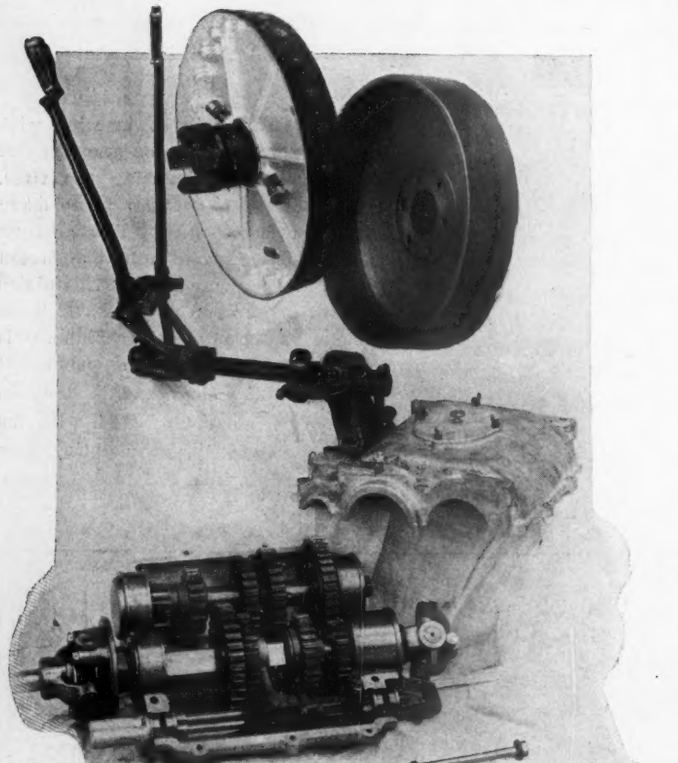


FIG. 11—PIERCE FOUR-SPEED SELECTIVE GEARSET

The remaining details of the motor remain unaltered, but attention is directed to the carbureter system, Fig. 10, in which the auxiliary air valve X is the leading novelty. This valve, now used for the second season, consists of a vertical cylindrical chamber X covered by a fine mesh screen. In the sides of the cylinder are three vertical rectangular ports, each covered by a spring brass reed. The three ports are of different sizes. Back of each reed is a flat leaf spring of different tension for the three ports. The operation is briefly as follows: As soon as the motor speeds beyond the normal air supply the first reed opens slightly until checked by the retarding influence of its spring, and then continues to open more and more until completed, when the next largest port commences opening. In this way there is a gradual progression in the carbureter control. The intake manifold is a loop with the horizontal part P connecting direct with the three cylinder castings, and the loop portion L delivering to it at two points, one midawy of the first and second castings and the other midway of the second and third. This necessitates the mixture traveling the same distance to all six cylinders. As heretofore the carbureter air is taken in from above the flywheel through the pipe A.

Seven Bearings Used

The Pierce company has always been a believer in strong construction, which is still continued in its motor, in that seven bearings are used for the crankshaft, in spite of the fact that the cylinders are cast in pairs. Ordinarily where cylinders are in pairs a six-cylinder motor has but four crankshaft bearings, but the Pierce uses seven, the bearing between the two cylinders constituting a group being somewhat shorter than that between the twin castings. The two cylinders in each group are water-jacketed all around the walls, there being a space between the adjacent walls of the cylinders for water equal to that on the outer walls. The employment of I-Beam forged steel girders Z to support the motor direct from the main frame members is continued.

A change in the ignition system is illustrated in Fig. 4, and consists in the use of a master vibrator Autocoil and battery

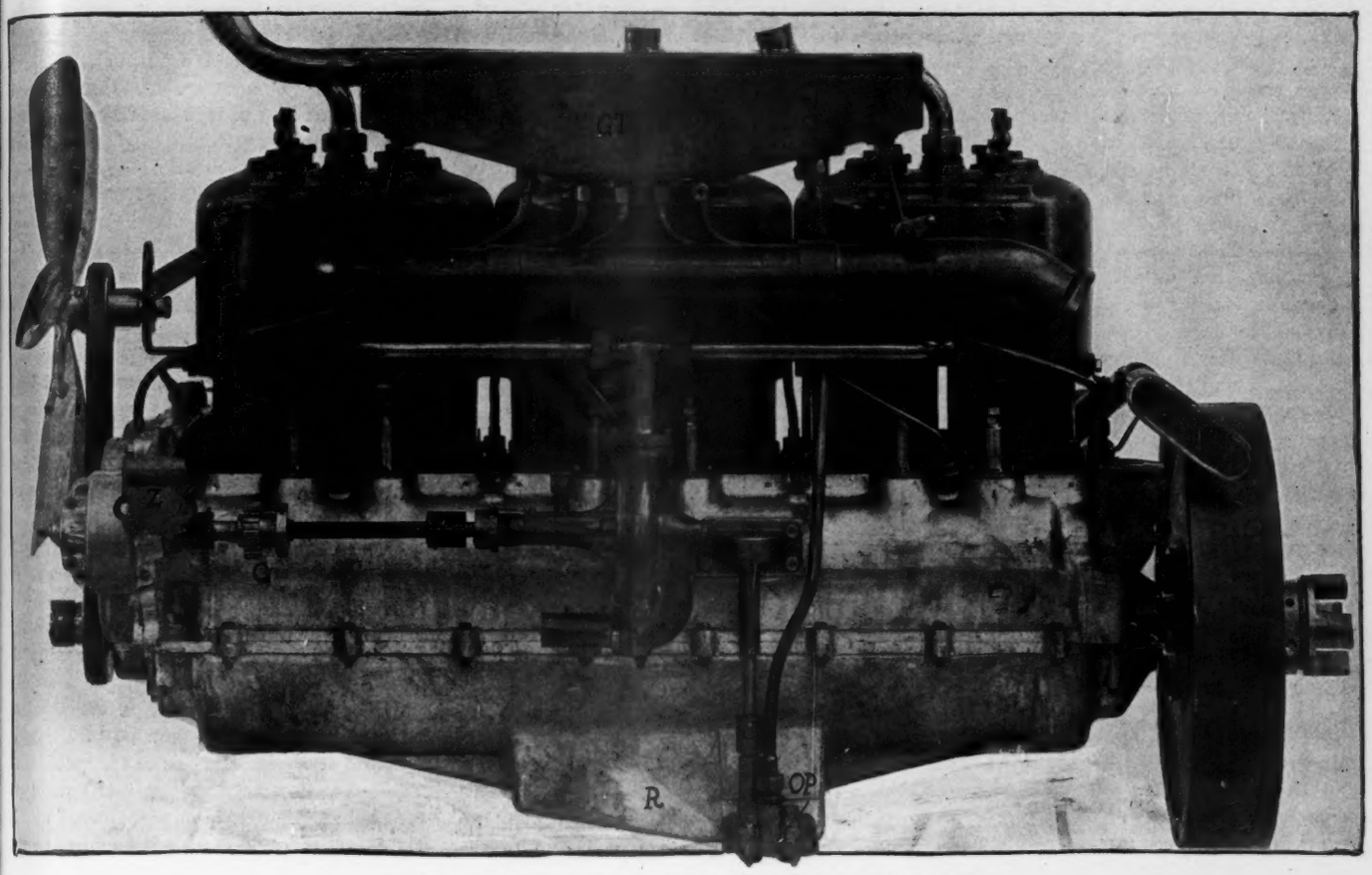


FIG. 12—G IS PINION FOR DRIVING POWER PUMP TO INFLATE TIRES

system. As will be noted in this illustration, the coil contains six units without vibrators and that at the end is a seventh which is so wired that its vibrator serves for all six cylinders. The advantage of this master vibrator system is that sychronized ignition for all six cylinders is possible. There is the adjustment of but one vibrator. The major ignition system of the car consists of a Bosch magneto with separate set of plugs.

Improvements in Transmission

Some improvements have been made in the transmission, these chiefly being matters of location. The gearset housing has been slightly raised in all three models, ¼-inch in the six-36, and ⅜-inch in the six-48 and six-66. On all models the gearshaft lever has been lengthened 2 inches. The four-speed selective set, Fig. 11, is still used, giving direct drive on the fourth, one and one-third to 1 reduction on the third, 2 to 1 reduction on the second and 3½ to 1 on low. Shafts and gears are made from Krupp chrome nickel steel and annular ball bearings are used throughout, there being a double race supporting the short clutch shaft in the forward end of the case. The two moving sets on the main shaft are splined in place, and the large countershaft gears are bolted to integral flanges. The two smaller gears on this shaft being secured by keys.

In the brakes, which are internal and external sets on the rear axle, pressed steel drums have been used with increased diameter over the present, the increased braking facilities being 25 per cent. Thicker Raybestos linings are specified, and an improved arrangement of the brake hangers increases the leverage on the brake for the same effort on the control lever or pedal.

The running boards have been made 2 inches wider throughout, and a sheet metal apron placed between them and the under side of the frame. This extends the entire length between the mudguards and completely encloses the sides of the car from front to rear. A new type of mudguard has been adopted, the forward ones being made with a straight slope to the rear, which facilitates the closing in of the sides. A ⅞-inch flange is now placed round all guards. A special housing is riveted to the forward end

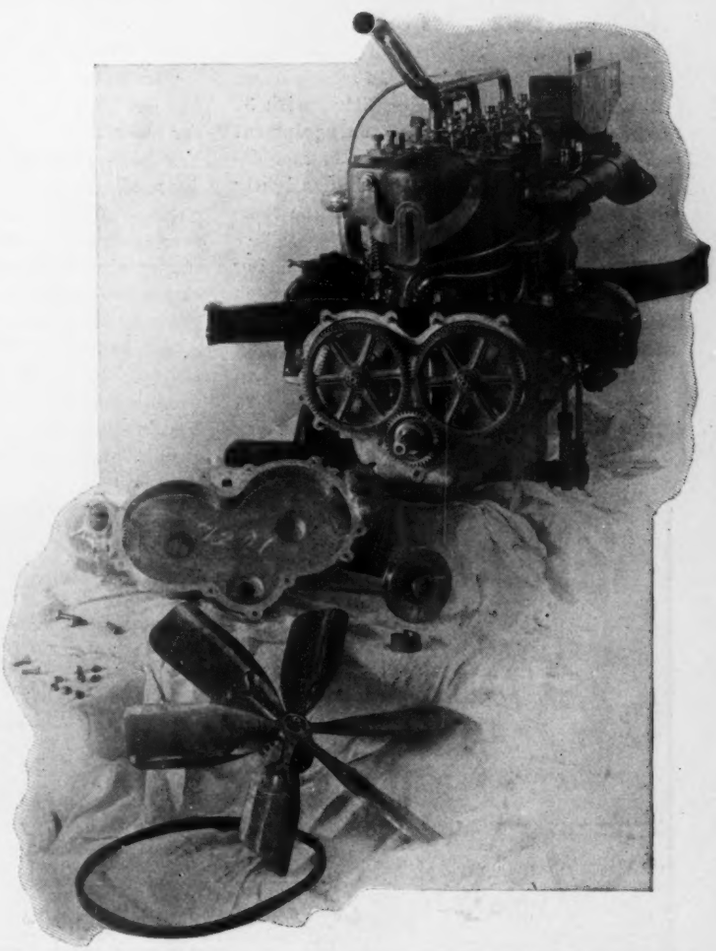


FIG. 13—PIERCE FAN SUPPORT AND TIMING GEARS

of the rear mudguard in order to encase the protruding end of the rear spring. Automatic grease cups are now provided on all spring shackle bolts.

Strengthening Steering Column

An additional lock has been placed on the ball thrust bearing supporting the steering column, and the latter has been given a slightly greater rake on the touring and enclosed cars, this being a 50-degree angle on the six-36 and 49 degrees on the other two models. The hollow type of dash has been adopted for the six-36, making all three uniform in this respect, and the use of bright brass molding has been abandoned, aluminum, covered with paint, being employed instead. In addition to the slightly altered angle of the steering column, the control levers also have been arranged so as to be much more convenient. The steering wheels have been increased to a diameter of 18 inches.

A most striking change on the new cars consists in the greatly increased size of the tire equipment to be provided on the 1910 models. The six-36 touring car, landaulet and brougham are fitted with 36 by 4 and 4½ inch tires, instead of 34-inch, as this year; and the six-48 has 36 by 4½ and 37 by 5-inch front and rear. Although larger diameter tires are employed for the rear wheels, all are interchangeable on the same rims, so that a rear tire may be used on a front wheel where desired, or vice versa, in case of emergency. The tire equipment of the six-66 consists of 37 by 5-inch front and 38 by 5½-inch rear on the touring and enclosed types, the miniature tonneau and roadster being fitted with 37 by 5-inch tires all around, the equipment of these types of cars in the 36 and 48-horsepower models also being slightly smaller than those mentioned for the touring and enclosed cars.

The runabout and miniature touring types are built on special chassis in each case, the wheelbases being shorter and the bodies not being interchangeable on any of the other chassis. The brougham and landaulet bodies are interchangeable with the five-passenger touring type of the six-36 model, this being listed as a strictly five-passenger car, whereas the enclosed and touring bodies of the higher powered cars are interchangeable on either of the chassis, a six-48 touring or landaulet body fitting a six-66 chassis and vice versa.

Other Pierce Changes

The chief remaining changes to be mentioned are those of equipment. In place of the gas generator formerly supplied, a large sized Prest-O-Lite tank has been substituted and a special box hung from the frame at the rear has been designed to accommodate it. This box is kept locked and as a special supply cock is placed in the feed line just outside of it to turn the gas on or off, it does not have to be opened except to receive a new tank.

In place of the gasoline gauge formerly placed on top of the gravity fuel tank under the forward seat, a special sight gauge glass is now mounted on the dash in plain sight of the driver, and a small electric lamp and push button are supplied to illuminate it at night. The gasoline feed pipe to the carbureter is also supplied with a union at each end, thus greatly facilitating its removal. During the past year the Pierce art department has been at work on the designs of new fittings, and the result is to be seen in the new hexagonal lamps, door handles and the like. These designs are exclusive to the Pierce cars and the same motif will be employed throughout in the ornamentation.

1910 SPOERER CAR

Carl Spoerer Sons' Co., Baltimore, Md., has had its 1910 Spoerer car on the market for several weeks and the demonstrator has been put through its usual workout over all kinds of roads and mountain paths. The Spoerer is a four-cylinder four-cycle car built in five and seven-passenger sizes, and embodies such principles as double ignition, cone clutch, selective gearset, floating rear axle and double rear wheel brakes. The principal change in the 1910 model is that the motor size has been increased from 4½ by 5 to 4⅞ by 5½ inches. The motor has its cylinders cast in pairs and is lubricated by positive gear-driven oiler with feeds leading to the crankshaft bearings. Motor cooling is through a honeycomb radiator with positive water circulation. A leather-faced cone clutch is used in the flywheel, the selective gearset gives three forward variations, has the gears and shafts made of Krupp nickel steel, both shafts are carried on Hess-Bright bearings. The rear axle is of Timken construction with a pressed steel housing. An I-beam front axle is used, as are semi-elliptics in front and full elliptics in rear. Tire sizes are 36 by 4-inch Goodyears with quick detachable rims. For five-passenger bodies a 117-inch wheelbase is used and for seven-passenger types this is increased to 124 inches. The brakes are of the usual internal and external types with woven fabric facings.

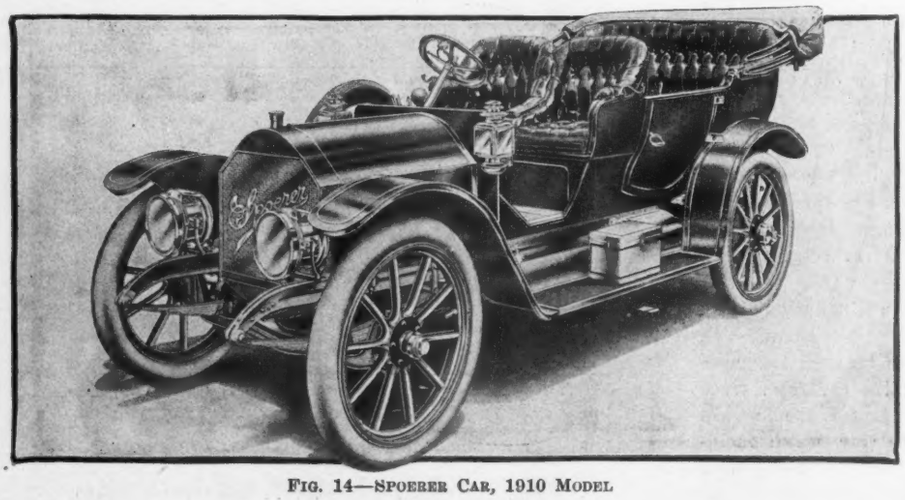


FIG. 14—SPOERER CAR, 1910 MODEL

MOTOR CAR LITERATURE

"The Seal on the Door," a most artistic brochure from the Pierce-Arrow Motor Car Co., calls attention to the fact that the great seal of the United States, for the first time in the history of the nation, is emblazoned on the door panels of the president's coaches, and that the first of these vehicles to bear the seal of the government is a motor car—the Pierce-Arrow. The book is handsomely printed on two-toned, buff-colored, highly enameled stock. Its charm of style is pleasing and delicate, and gives in an interesting manner a little historical sketch of some of the former occupants of the White House. In brief, it is a comparison of the means of transportation in the days of Washington, Madison, and Adams, with the ease and luxury of the motor cars of the present administration. The four-colored picturesque illustrations add to the attractiveness of the book.

The Peerless Motor Car Co., describes in an exceedingly attractive catalog its 1910 limousines. The duotone illustrations in black and yellow, depicting the field of the limousines, are most effective and the three-colored embossed cover forms a fitting complement to the name it bears. The usual descriptions, specifications and half-tone illustrations accompany the text.

The Oakland Motor Car Co., in an advance catalog announces its models for the 1910 season. Attention also is called to some of the Oakland victories in the 1909 contests.

The Hoyt Electrical Instrument Works has issued a new condensed catalog of its products, in which various types of the Hoyt meters are illustrated and described.

"Strictly a Business Proposition" is a booklet issued by the General Vehicle Co., drawing attention to the value of its electric trucks and delivery wagons as compared with the horse-drawn vehicle.

"Graphite and Grease" is the title of a folder from the International Acheson Graphite Co., Niagara Falls, N. Y., calling attention to the merits of its gear, cup and ball-bearing lubricants.

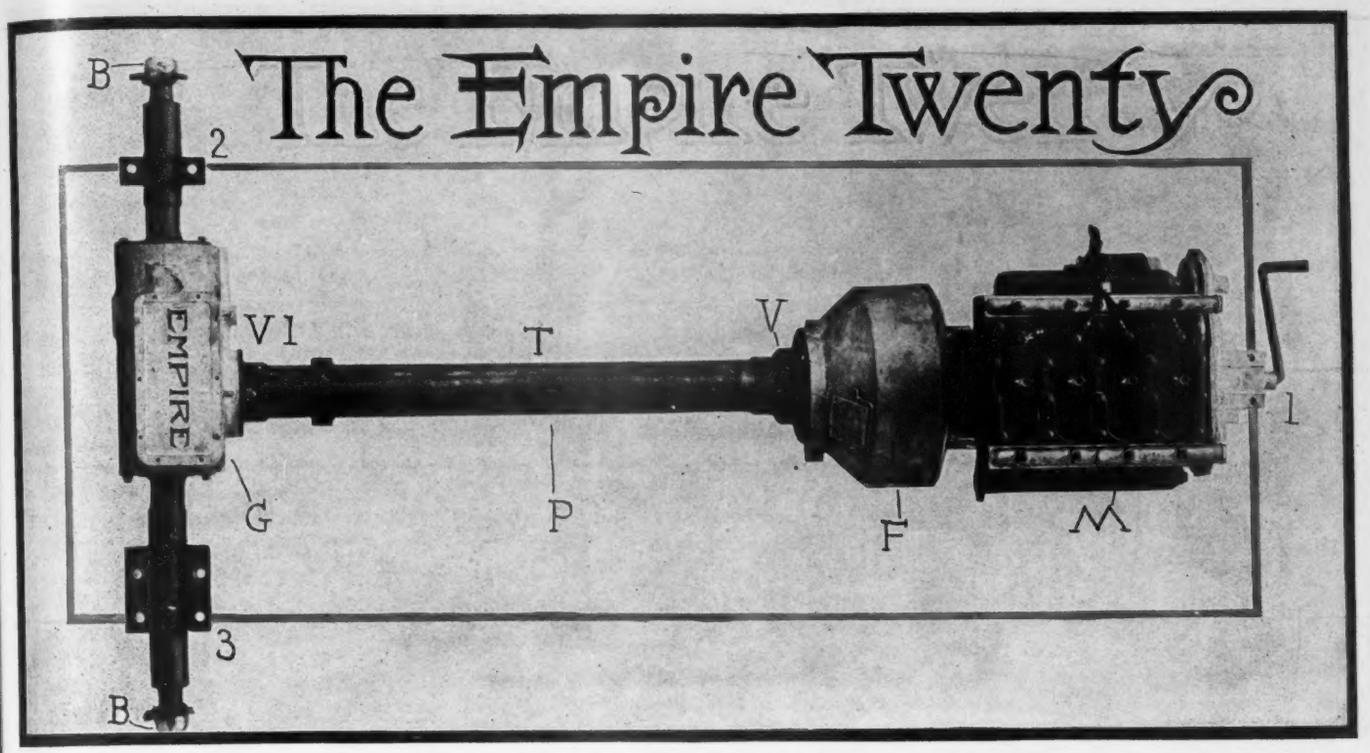


FIG. 1—UNIT POWER AND TRANSMISSION PLANT OF EMPIRE TWENTY CAR

A NEW car which has been placed on the market within the past month, and one in which many novelties are combined, is the Empire, manufactured by the Empire Motor Car Co., Indianapolis, Ind. The Empire is a four-cylinder car, cylinders 3½ by 4 inches, with an A. L. A. M. rating of 19.6 horsepower. The cylinders are formed in one casting with valves on opposite sides and having the intake manifold incorporated with this casting on the left and the exhaust manifold on the right. The cylinder head is cast separately from the cylinder proper and is held in place by twenty studs fitted with case hardened nuts. Between the cylinder head and the top of the cylinder walls is a large copper asbestos gasket. There is no water joint between the cylinder head and the cylinders.

By far the most important feature in conjunction with the Empire car is the rigid unit construction of the motor, transmission and rear axle. This power plant, illustrated in Fig. 1, is the backbone of the car, whereas in the majority of cars the frame constitutes this. The motor M, the clutch case F, propellor tubing T, the gearbox G and the jackshaft are a unit, there not being a single universal joint in this makeup. This skeleton is rigid from end to end. The motor at the point 1, the forward end, bolts to the frame forming a central support on the cross member. At the rear are two supports on the frame at points 2 and 3 through the jackshaft tubes. The reader must not confuse the transmission G as being incorporated with the rear axle, rather it is a jackshaft from which drive to the rear wheels is through side chains. The drive from the motor M to the gearset G is on a straight line independent of road conditions, and should the car frame become distorted this distortion is not necessarily transmitted to the power plant. The car frame is a cambria mild open hearth steel, the stock being the same as that used in bridge construction.

Returning to the motor the general cylinder design is shown in Fig. 4, which is a vertical cross section. The valves are large 1¾ inches in diameter, or just half the piston diameter, so that the area of each valve is one-quarter that of the piston. Valve stems are threaded and a hardened blind nut and lock nut serve as the adjustment for the clearance between the valve stems and the lifters. In manufacture the cylinders are first rough bored, then annealed, after which they are allowed to stand to avoid any strain and are then reamed, after which they are set aside for seasoning process before given the finishing reaming. The crankshaft, Fig. 3, is a twenty-point carbon steel forging with the two center cranks on the same throw, these being at 180 degrees to the end throws. It has but two bearings, both of Parsons white bronze, which is

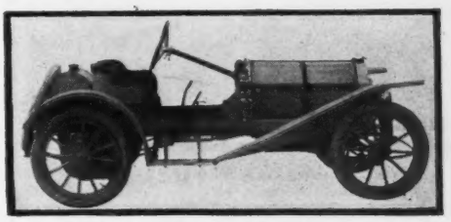


FIG. 2—EMPIRE TWENTY, MODEL B

FIG. 3—CRANKSHAFT IN EMPIRE CAR

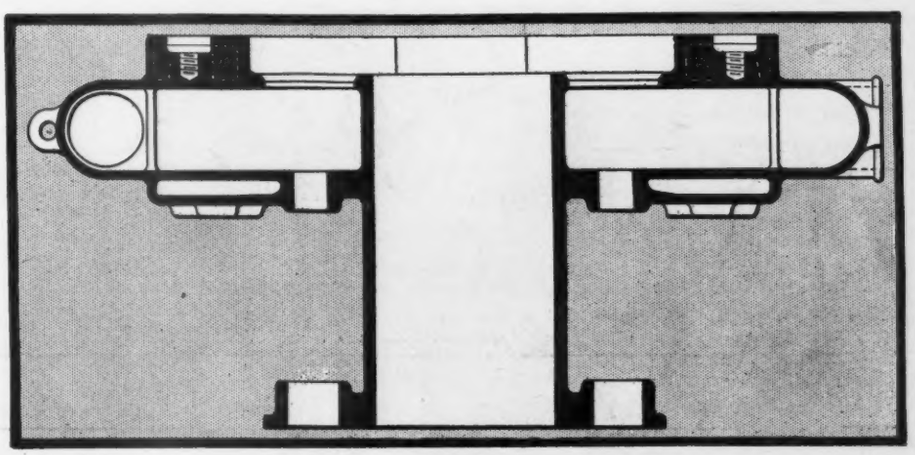


FIG. 4—SECTION OF CYLINDER IN EMPIRE TWENTY CAR

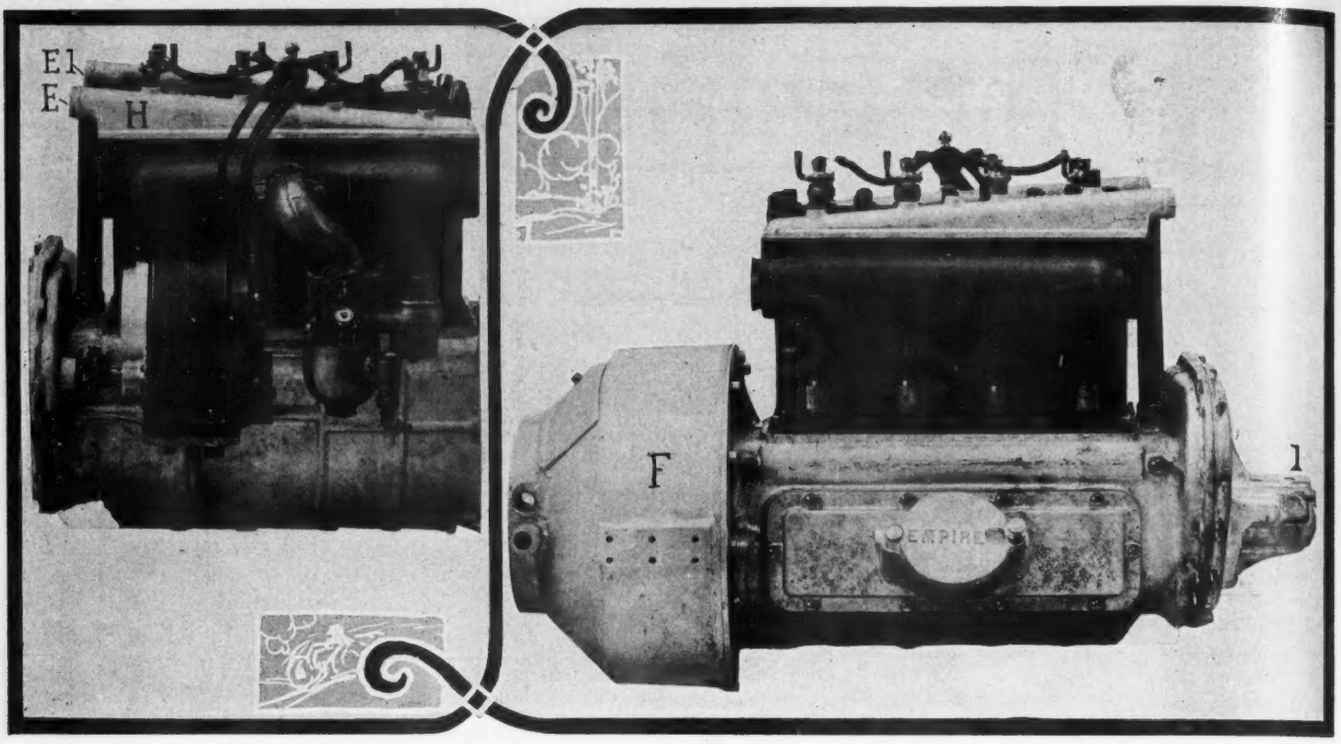


FIG. 5—INTAKE SIDE EMPIRE TWENTY MOTOR

FIG. 6—ENCASED FLYWHEEL USED ON EMPIRE TWENTY CARS

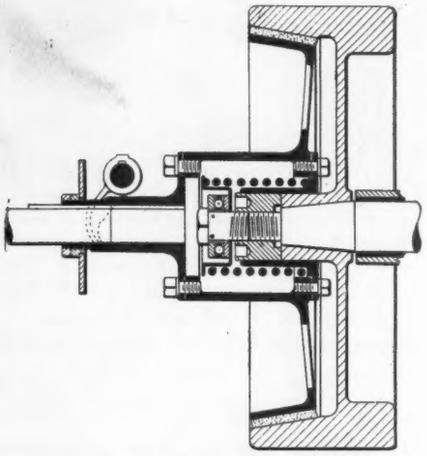


FIG. 7—CLUTCH IN EMPIRE CAR

also used for the connecting rod bearings.

The motor lubrication is by splash. The crankcase compartment holds sufficient oil for 100 miles running and is replenished from an auxiliary tank by means of hand pump. To increase the splash the connecting rods cap have a knife blade 2½ inches long forged integrally with them, which blade dips into the oil level in the case.

Ignition is by magneto and a battery with transformer is fitted as an auxiliary system. One set of plugs located over the intake valve serves for both systems. Cooling is by thermo-syphon.

First in the transmission system comes the cone clutch, Fig. 7, which has an aluminum web with a composition facing; the clutch spray is entirely enclosed and a ball thrust bearing is used in connection with the spray. The transmission, a two-speed selective set, gives direct drive through bevel gears. A gear reduction of 1 to 1.33 is used in the transfer of power from the propellorshaft P in the tubing T, Fig. 1, to the countershaft of the set. The gearbox G is an aluminum housing, but the supporting arms which attach to its end are steel tubes. On the ends of these arms are steel balls B of large diameter, and the forward ends of the pressed steel chain housings swivel on these balls, thereby forming a ball joint for the cases, which also serve as strut rods.

The rear axle is built up from 2-inch tubing with 7/32-inch wall. Into the ends of this tubing are fastened the axle spindles, which are 1 1/8-inch diameter. The rear wheel hub sprockets are drop forgings on both of the wheels. These forgings are turned on the internal diameters forming brake drums. Within these drums operate bronze shoes 10 inches in diameter with 1½-inch face. A hand brake is fitted on the transmission. The chain cases enclose these brakes, thus making the entire drive and braking system dust proof. The chains are of the roller type, with adjustment through pressed steel clamping rings. These rings fit over the ball joints B, Fig. 1, on the transmission arms, and an eccentric throw of ¾-inch serves to loosen or tighten the chains.

The front axle is of 2-inch tubing, having 7/32-inch wall with steering knuckles brazed thereto. Steering gear is of the pinion-and-sector type, with the pinion shaft hardened and ground. Parsons white bronze bearings are used. The steering wheel is made 15 inches in diameter on the runabout type and 18 inches on the racing type. Thirty-two by 3½-inch tires are fitted.

The Empire is built in two models: Model A, Fig. 8, is a standard runabout suitable for three-passenger use by the addition of the rumble seat on the rear deck. Model B, Fig. 2, is racy type with cylindrical gasoline tank back of the seat.

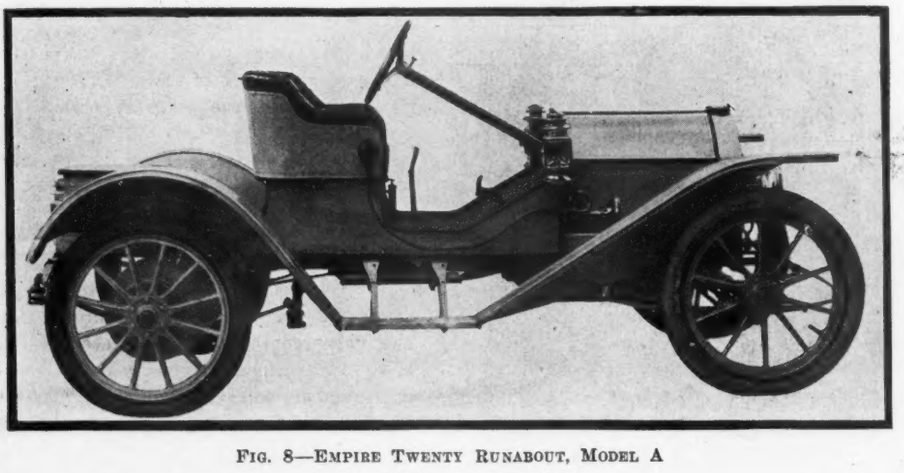


FIG. 8—EMPIRE TWENTY RUNABOUT, MODEL A

Development Briefs

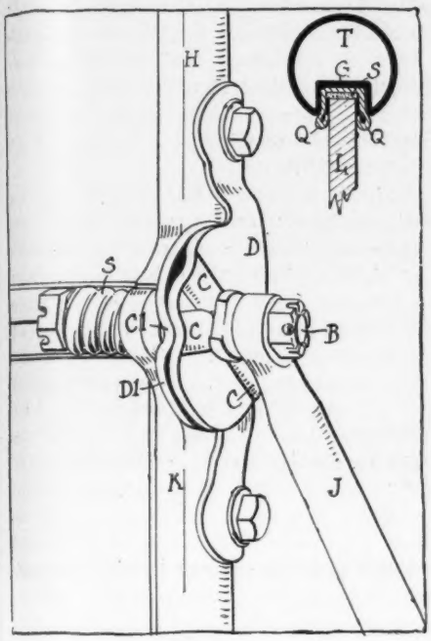


FIG. 1

Rands New Windshield

THE Rands Mfg. Co., Detroit, Mich., is manufacturing a new type of windshield, which it designates its No. 10 disk automatic, in which the upper half of the windshield is hinged to the top of the lower half and by an automatic arrangement locks in three positions—vertical, semi-vertical and closed. Fig. 1 illustrates the operation of locking in the different positions, and Fig. 4 shows the shield in the semi-vertical position. Securely attached to the upper half H of the frame is a disk D in which are three corrugations C. Rigidly attached to the lower half K of the frame is a stationary disk D1 with a single corrugation C1. Forming the hinge is a bolt E carrying a spring S, which tends to hold the disks D and D1 together. With the two corrugations C1 and C coinciding, as illustrated, the tension of the spring S is sufficient to hold the upper half H locked, but to lower the upper half the corrugations C1 can be forced out of the corresponding corrugation C, the spring S being put under more tension at such times. When the upper half H is brought to the semi-vertical position the first corrugation C coincides with the corrugation C1, and in the closed position the third corrugation C is locked with C1. Drawn channel tubing is used for the framework throughout. This tubing T, in the small cross sectional illustration, Fig. 1, contains a groove G in which the glass L rests, there being a stop Q for holding the glass in place and a cushion S to prevent rattling. Parsons manganese castings are used, and the stay or supporting

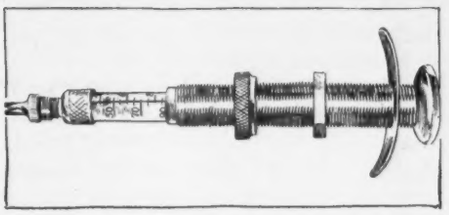


FIG. 2

rods J telescope. This windshield is made in three designs—for regular touring cars the upper half is 11 inches high and the lower half 17; for runabouts or phætons the glass is 26 inches in height, and with cars where the angle of the steering column will permit it is 28 inches in height over all and divided in the center.

Registering Speedometer

Perhaps the only objection that can be brought against an accurate modern speedometer is that it is ephemeral. It gives the speed at which the car is traveling while the car is in motion. When the car stops the pointer drops back to zero, and nothing more is to be learned from the clock-like dial. On certain instruments the maximum speed remains permanently recorded, but even this is a meager record compared with the one supplied by an instrument just produced in Europe.

The O. S. register shows the speed at which the car is traveling, in the same way as the usual type of speed indicator, and at the same time prints, on a narrow strip of paper an account of all that has been done by the car from the moment it is taken out of the garage to the instant it is brought back again. If it is desired to know what the car was doing between 3 and 4 in the afternoon, it is only necessary to look up the band and everything will be found in black and white; the speed minute by minute; the exact minute when

FIG. 3—THE O. S. SPEEDOMETER

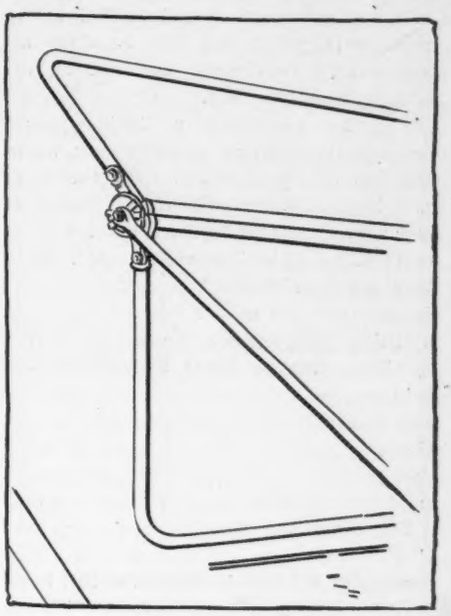


FIG. 4

each stop was made, how long the stop lasted, at what time the car started, at what speed it ran, how often the brakes were used, etc.

The matter is simple. Within the brass box containing the speedometer is a roll of paper about 1 inch wide which is unrolled from one spindle to another at a determined rate. The paper bears horizontal and vertical lines, these latter representing minutes, 15 minutes and hours. The band is driven by clockwork mechanism, the passage of each one of the vertical bars representing 1 minute. The horizontal bars represent each 10 kilometers and run up from 10 to 100 kilometers. With the clockwork in motion and the car standing, the band is unrolled from one spindle to another at the rate of one vertical bar a minute, nothing being marked on the paper.

As soon as the car is put into motion and the speedometer, operated in the usual way by flexible cable from a front wheel, begins to act, a stencil begins to trace a line of the moving band of paper, passing under it at the rate of one vertical space a minute. Where the diagram crosses the horizontal lines it shows the speed of the car, and where it crosses the vertical lines it shows the hour at which that speed took place.

Schrader's Pressuretell Valve

The Indicator Sales Co., New York, is marketing the Schrader Pressuretell valve which shows the inflation pressure of tires. The valve contains, as illustrated in Fig. 2, a graduated scale on which the pressures in pounds are shown, the illustration showing the pressure to be approximately 90 pounds.

CRANKSHAFT CONSTRUCTION AND DESIGN

By Thomas J. Fay

(Concluded from Last Week.)

A DETAILED inspection of the several examples of solid crankshafts here offered will show differences among them, and particular attention is called to the manner in which the ball bearings are maneuvered into place, as well as the security methods used.

Fig. 24 represents a double-opposed crankshaft with end bearings only, showing one of the bearings with the outer race locked to take end thrust. The other end bearing is free to float, but the inner races of both bearings are clamped. Both bearings are Nos. 314-F & S, which in the judgment of the author is not quite up to a fitting theory since the weight of the flywheel must be borne by one of the bearings, and the torque of the motor is also transmitted through this same end of the shaft. If the No. 314 bearing is big enough for the flywheel end bearing, a smaller bearing will do for the other end.

Fig. 25 is of a three-bearing type, with F & S ball bearings, and is interesting because of the way in which the ball bearings are housed in the crankcase. In this case the parting is radially rather than in the plane of the crankcase, and the central bearing, although it is of greater diameter in order to pass over the throws of the crank, is not of greater capacity because the balls are smaller. All essential dimensions are given, and as a type this crankshaft, together with its housing, represents something out of the ordinary.

Although Fig. 26 is a single-throw crankshaft, it introduces a new idea in ball-bearing work, showing the F & S dual type of annular ball bearings at one end with the outer raceway locked so that end thrust is adequately counteracted.

Fig. 27 represents a two-crank shaft and is so dimensioned as not to require further description in the main, but it affords an insight to certain features of design which will have to be taken into account in connection with the theory of crankshafts. It will be observed that the connecting arm is diagonal and 35 millimeters thick; the end arms are not diagonal and are but 29 millimeters thick. It is self-evident that bending moments are not present in this plane in the end arms, and they do not have to be made thick on that account. The connecting arm at the middle is diagonal, and the added metal is to compensate for diagonal stresses induced under the conditions which must obtain under the circumstances.

Fig. 28 represents an integral six-cylinder crankshaft of the F & S ball-bearing type, in which arms are replaced by disks, just as in the built-up type. In this crankshaft bending moments only will have to be encountered since the disks will be considerably stronger than the work will indicate. Balancing is the prime idea in this case, and in figuring on the secondary components, a little later on, this type of crankshaft will receive a little further attention. It will be well to notice that only one of the end ball bearings is locked; the remaining ball bearings are free to float.

Fig. 29 is of an F & S ball-bearing type of crankshaft for four cylinders, using three ball bearings and arms in the plane at right angles to the axis. This position eliminates oblique moments in this plane. The thicknesses of the arms differ, depending upon the length and location, as for illustration, the short arm at the front end of the motor is 27 millimeters thick, but the same length of arm at the middle of the crankshaft is 36 millimeters thick. This is to compensate for additional work imposed in view of position, it being the case that the twisting moment of two cylinders must be resisted by this arm. At the flywheel end the short arm is really thicker, owing to the 110 diameter of the shaft at that point, which reinforces the arm, in that it has the effect of shortening it. The long arms are 40 millimeters in

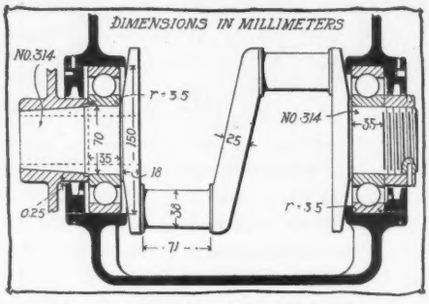


FIG. 24—TWO-BEARING CRANKSHAFT

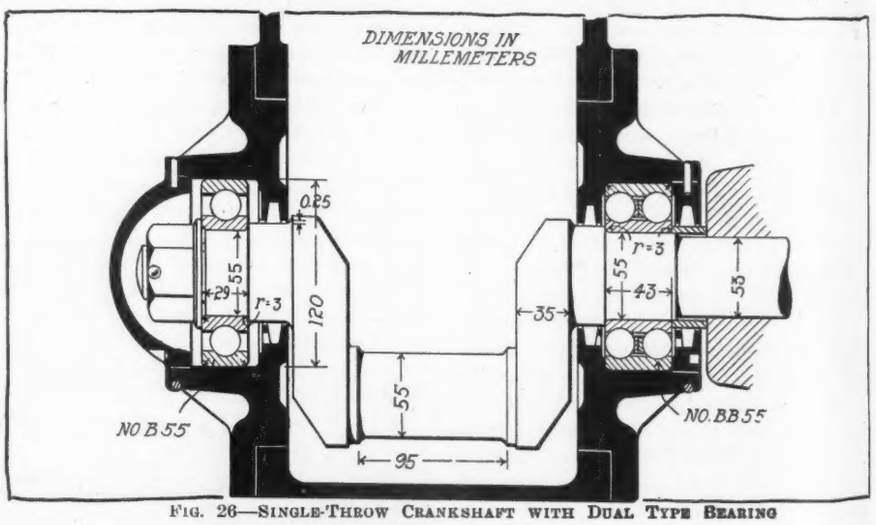


FIG. 26—SINGLE-THROW CRANKSHAFT WITH DUAL TYPE BEARING

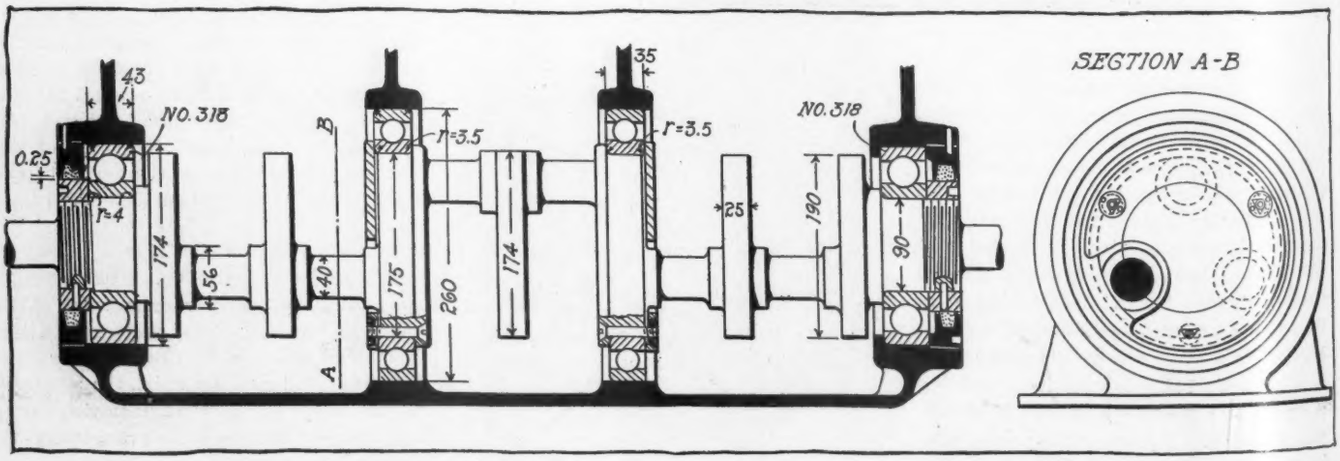


FIG. 28—F & S BALL-BEARING DISK-TYPE CRANKSHAFT FOR SIX CYLINDERS

ALL BUSY IN BUFFALO

Buffalo, N. Y., Sept. 10—Up to the present time the E. R. Thomas Motor Co. has delivered, all told, 1,942 taxicabs and has under way some 700 of this type of cars, with a demand quite in excess of the output. The Pierce-Arrow Motor Car Co. is fast completing preparation for the prompt delivery of 1,500 cars during the delivery season for 1910. About 1,500 men are in full swing. The Allyne Brass Foundry Co. reports deliveries from the Buffalo branch of more than a car a week of aluminum, brass and bronze castings, mostly all of which is used in motor car work. The Crosby Co. at its large plant is delivering quantities of drawn and pressed steel to the trade in the shape of hubs, covers, brake drums, body irons, etc. The process used by the company permits the use of fine grades of steel, induces lightness with strength of parts, and from the point of view of delivery there is no process that is more conducive of result.

thickness, which additional length adds to the moment, and requires a greater area of arm to adequately resist; the extreme fiber strain should be the same at all points in a shaft, since the material is the same throughout, and this end is accomplished when all the arms are of sections to match the moments generated.

Fig. 30, representing a Hess-Bright ball-bearing crankshaft, is considerably out of the usual order, but a study of its features will disclose good designing, particularly if account is taken of the absence of definite change in direction of the metal at any point. It should be well understood that if the finger of strain cannot point to a definite change of shape at any point, the concentration of strains will be eliminated, and as the strains are spread out, so will the extreme fiber strain be reduced.

Fig. 31 is offered as a Hess-Bright type of crankshaft in which the manner of bushing the pins under the ball bearings will stand critical examination. As will be observed, a pair of truncated cones are telescoped, and the parts are of horseshoe contour to clear the arms. When the wedge formation is fetched up by means of the pull bolts, the bearings are then

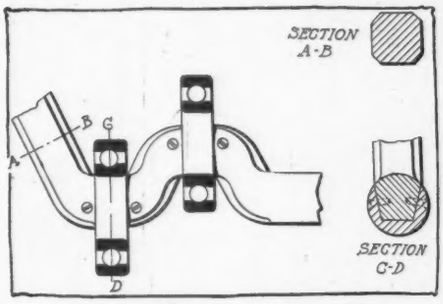


FIG. 30—ELIMINATING SHARP BENDS

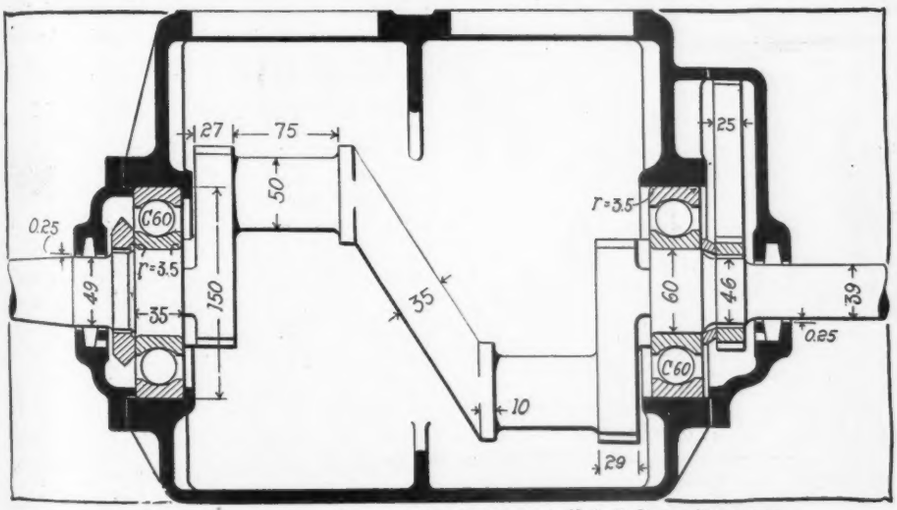


FIG. 24—DOUBLE OPPOSED CRANKSHAFT ON F & S BALL BEARINGS

TUBE PLANT FOR POPE

Hartford, Conn., Sept. 11—The Pope Mfg. Co. has virtually acquired the plant formerly known as the Pope tube mills, situated just south of the plant of the Hartford Rubber Works Co. The Pope company is now in a condition to warrant taking over the plant. The Capitol avenue works of the company now employ close to 1,000 men, about the limit of the works, and it is deemed a matter of economy by the officials of the company to acquire the tube mills, for much of the overflow of the works proper will be done there. Eventually it will mean employment for probably 200 men.

It is stated on authority of President Rockwell of the New Departure Co., of Bristol, Conn., that that concern and the Bristol Engineering Co., of the same town, will be merged as soon as the necessary formalities can be complied with. This action meets with the unanimous approval of the stockholders of both companies.

held in such rigid relation that the inner races are to all intents and purposes locked; the bearings have to be larger than the required diameter of the shaft in order to pass over the arms. In this shaft all the arms are of the same axle thickness because they are all of the same length, and the thickness adapted is that required for the first arm nearest the flywheel.

Fig. 32 shows a variation of the preceding figure, and interest will center around the manner in which the Hess-Bright ball bearings are mounted, which is clearly shown with all necessary dimensions.

Fig. 33 represents a three-throw crankshaft, with the cranks at 120 degrees. This crankshaft is in a case which is opened at the ends, and the scheme of mounting the bearings is interesting on this account. This same crankshaft represents half of a six. Should it be desired to make one for a six-cylinder motor the middle throws would be in the same angular plane.

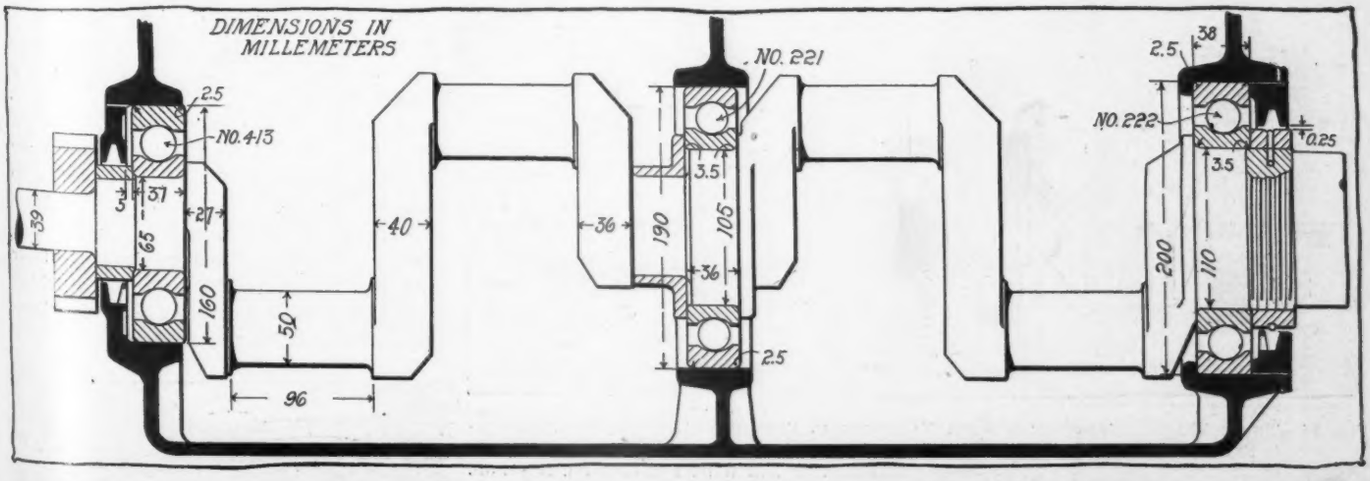


FIG. 29—FOUR-CYLINDER MOTOR CRANKSHAFT ON F & S BALL BEARINGS, WITH FLANGED RETAINER FOR CENTRAL BEARING

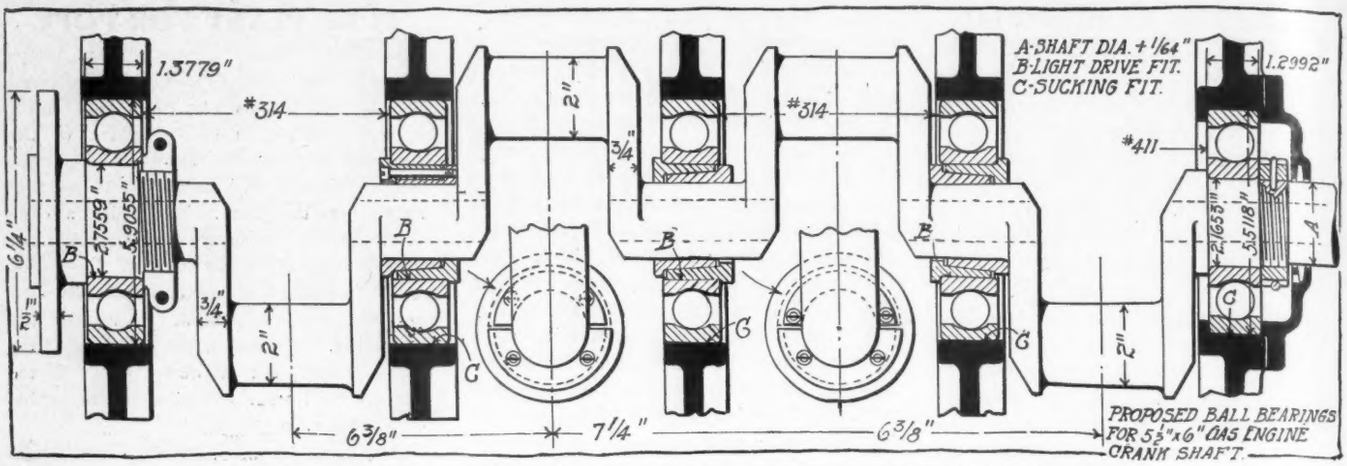


FIG. 31—HESS-BRIGHT BALL-BEARING CRANKSHAFT, SHOWING RETAINERS UNDER CRAMPED CONDITIONS

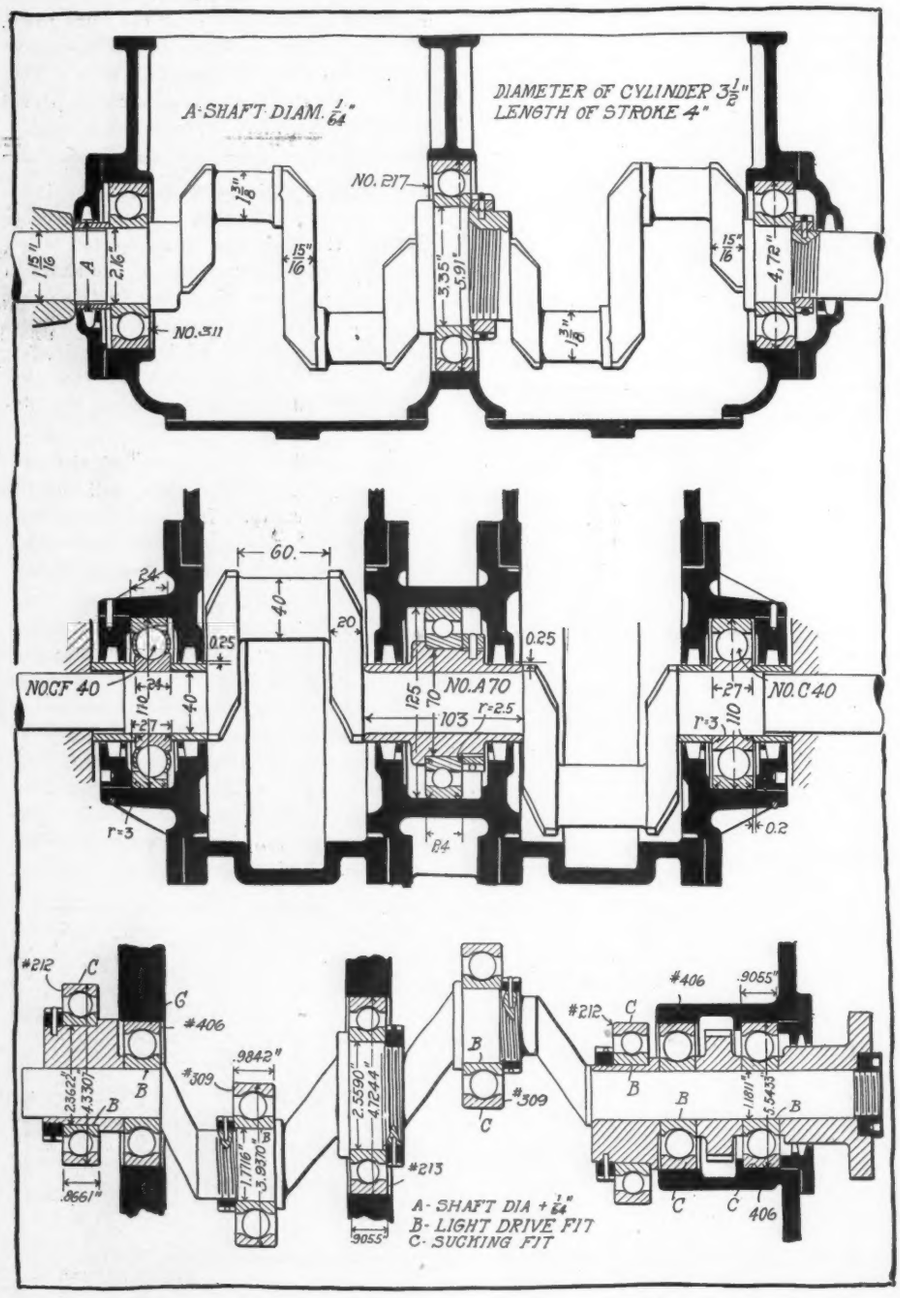


FIG. 34—THREE BEARING CRANKSHAFT WITH VARIATION IN SYSTEM OF LOCKING BEARINGS
FIG. 25—F & S BALL-BEARING CRANKSHAFT WITH CRANKCASE IN SECTIONS
FIG. 36—AN EXAMPLE OF THE WIDE USE OF BALL BEARINGS

Fig. 34 illustrates still another idea—mounting Hess-Bright ball bearings—and the arms are so trimmed that the diameters of the ball bearings do not have to be so enormous as is sometimes true. In this example one of the outer races is locked to the case to take thrust, and a snap-ring serves very nicely for the final locking means. It is interesting to note that all the arms are of the same thickness, regardless of length, and if what has already been said about this matter is true this phase of the design is below a certain standard.

Fig. 35 shows in great contrast with the preceding examples, since one pair of arms

BIG OUTPUT FOR INDIANAPOLIS

Indianapolis, Ind., Sept. 13—Estimates furnished by the ten local motor car manufacturers show that 15,750 cars will be manufactured in this city for the season of 1910. These are merely present estimates, and if the same conditions prevail next season that have prevailed this season, it will not be surprising if the number is increased to 20,000 cars. The Overland Automobile Co. will lead in the production of cars from a numerical standpoint, expecting to make 6,000 at the local plant, and some 10,00 at the Toledo, O. plant. The Parry Automobile Co. which will introduce itself to the public with a 1910 line, expects to manufacture 5,000 cars. Other factories will turn out from 300 to 600 cars each. In order to gain the capacity for the increased output, manufacturers are enlarging their plants. The Premier and National companies are building large additions, and the Cole Motor Car Co. expects to erect a large building. Manufacturers of parts and accessories also expect to increase their output in 1910. Wheeler & Schebler, carbureter manufacturers, already have plans for an immense addition.

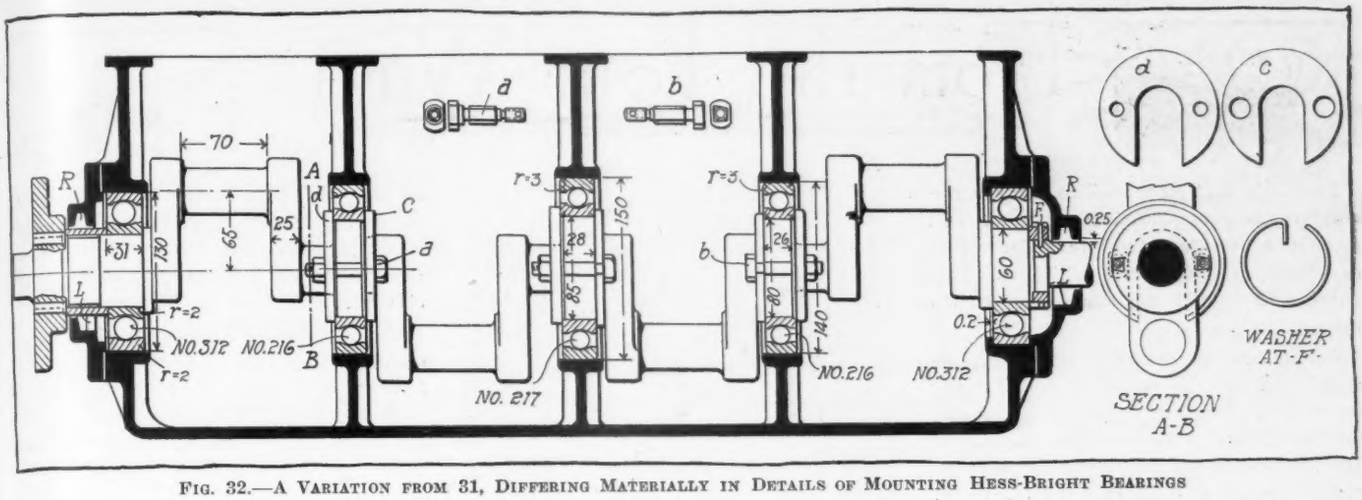


FIG. 32.—A VARIATION FROM 31, DIFFERING MATERIALLY IN DETAILS OF MOUNTING HESS-BRIGHT BEARINGS

are in the diagonal, and the thickness of metal is 1 inch on this account. The short straight arms, on the other hand, are only ½ inch thick, and if this amount of metal will serve for this motor it will also serve for the preceding motor, since the cylinders are for substantially the same power. In this case the connecting rods are provided with ball bearings, and in this respect the motor differs from all others shown, considering the size.

Fig. 36 is offered as a wide departure from current practice, showing Hess-Bright ball bearings throughout, including connecting rods, and a bearing on each side of the half-time gear.

OVERLAND STOCK INCREASED

Indianapolis, Ind., Sept. 14—At a meeting of the board of directors of the Overland Automobile Co. this afternoon the capital stock of the concern was increased from $800,000 to $1,500,000 and the name changed to that of the Willys-Overland Co. Both steps had been contemplated for some time and the increase in capital stock will take care of the recent purchase of the Pope-Toledo property at Toledo, O., and also of the new buildings that have been erected in this city. The company has just completed two two-story buildings, each 368 by 80 feet, additions to the original Overland plant, which contains 50,000 square feet. During next season the company will manufacture all of its engines in the old Marion factory at Fifteenth street and the Big Four railroad and will manufacture the Marion cars in the Laycock Industrial building, where the company has 36,000 square feet of space leased. Will H. Brown, vice-president of the company, stated this afternoon that the company is planning to build 20,000 cars next season, of which 6,000 to 9,000 will be built here. He said that 15,000 have already been contracted for.

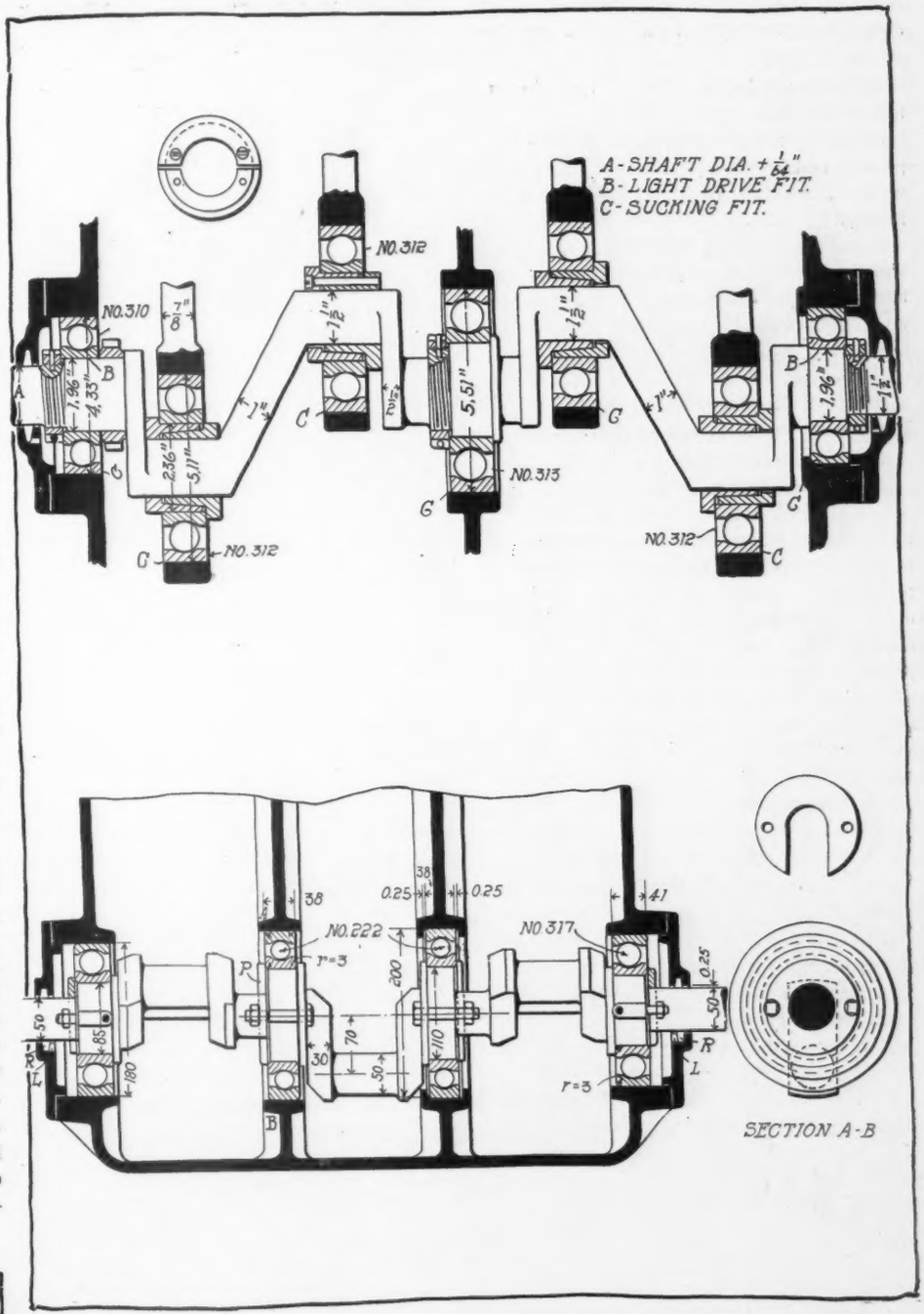


FIG. 35—PECULIAR SHAPED CRANKSHAFT WITH CONNECTING RODS, ALSO ON BALL BEARINGS

FIG. 33—CRANKSHAFT OF THREE-CYLINDER MOTOR MOUNTED ON HESS BRIGHT BALL BEARINGS

From the Four Winds

N S E W

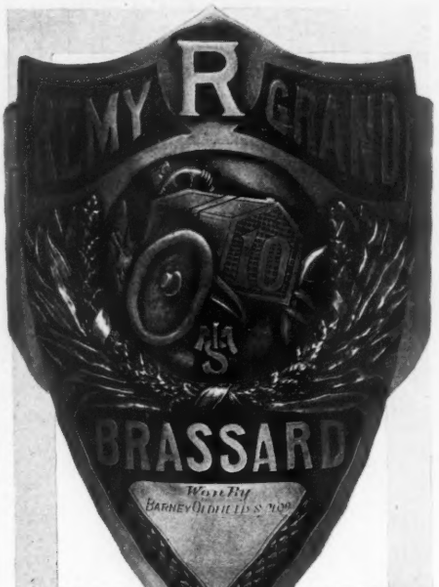
Big Club Run—The Wilkinsburg Automobile Club, of Wilkinsburg, Pa., will make a trip to Cleveland late in September in which forty cars will take part. This will be the fourth big run of the season for this club.

Defends Track Racing—The recent 300-mile track race at San Francisco for the Hotel St. Francis trophy, which was won by the Lozier, with the Thomas second, has resulted in an argument as to track racing being a dangerous sport, C. S. Bougher, the promoter, ably answering the attacks of his opponents in the controversy.

Helps the Soldiers—Even Wisconsin national guardsmen are unable to get along without the use of motor apparatus, as was proven last week when Troop A, of Milwaukee, started its 100-mile march to Puckaway lake. The team of the commissary wagon went lame before 10 miles had been covered and in response to a hurry call to Milwaukee, a motor truck was dispatched to the scene and hauled the heavy wagon to the lake and back with ease. This incident will form a feature of the report of Commander R. W. Mueller to the secretary of war.

Resigns Under Fire—A. M. Jackson, chief of police of Kokomo, Ind., has tendered his resignation, following a hearing on charges preferred by a number of motorists that he was largely responsible for obstacles placed in highways by farmers. A few weeks ago several accidents occurred because of obstructions being placed in roads and it was charged that the chief of police of Kokomo had intimated to farmers they could break up speeding if they took such steps. Formal charges were filed against Jackson and he was given a hearing. Following the investigation he submitted his resignation, which was accepted.

Road Commissioners Sued—Because the commissioners of Lucas county, in which Toledo is located, were guilty of negligence in permitting a county road to become full of weeds and failing to construct proper guards for the protection of the traveling public, the county has been made defendant in a $10,000 damage suit which promises to untangle a number of interesting legal propositions pertaining to the control and care of Ohio highways. The suit, which is of peculiar interest to owners of motor cars, is the result of a motor car accident which occurred on August 24, 1908, in which Charles W. Pohlman and the Rev. George Vahey, both of Cleveland, were killed. The machine was thrown over an embankment and overturned as the direct result of the condition of the road.



THE REMY BRASSARD

The case will be hotly contested and in all probability will be made a test as to the effect of permitting rank weeds and other obstructions to impede the progress of motor cars properly traveling on the road.

Commercial Trials Interest Many—The outlook for the industrial motor car trials of the Automobile Club of France, to be held October 15 to November 15, is that they probably will be a huge success. Already thirty-three cars have been entered by manufacturers.

Sell Road Bonds—Bonds to the amount of $22,340 have been sold by the Lucas county, O., commissioners at a premium of $437.50. The proceeds of these bonds will be used in the improvement of the Trilby road. Bonds were also sold to the amount of $6,890 at a premium of $151.50 for the improvement of the Reynolds road. There were fifteen bidders for each issue.

Reward for Ohio—"The progressive spirit shown by Ohio in the matter of road building, now that the question has finally been taken up in earnest, was a large determining factor in bringing the convention of the National Association of Road Makers to Columbus," is the statement of E. L. Powers, secretaray of the association. Mr. Powers, together with Commissioner J. H. McDonald, of Connecticut, president of the association, were in Columbus recently to make arrangements for the meeting to be held October 26, 27 and 28. Mayor C. A. Bond, State Highway Commissioner J. C. Wonders, President Benham and Secretaray Bassell, of the Columbus Chamber of Commerce, are aiding in arranging for the convention. In conjunction with the meeting there will be a large exhibit of road building machinery.

Cup Up For a Record—A $200 cup is offered to anyone lowering the record of Arthur Cowley's Stoddard-Dayton, of Spokane, Wash., which recently made the run from Cœur d'Alene, Ida., to Spokane, Wash., a distance of 31 miles, in 37½ minutes.

Glidden Marmons Will Compete—The two Marmon cars that participated in the Glidden tour, finishing with the second best team score, have been shipped from Indianapolis to participate in other long-distance events. The No. 5 Marmon has been sent to Washington, D. C., for the Munsey reliability, while the Marmon No. 4 has been sent to Kansas City for an endurance run.

Speedway Tests Brick—It is expected that the Indianapolis Motor Speedway Co. will reach some decision this week as to the kind of material that will be used for resurfacing the course. Brick manufacturers have laid a small portion of the course with brick, while wooden block, bitulithic and bitu mineral materials also are being considered. As soon as the course is resurfaced, a date will be announced for the 24-hour race.

Europe Waking Up—It is reported that the Royal Automobile Club of Belgium, the city of Ostend and the motor club of that city are now in correspondence concerning the possibilities of promoting a monster motor race meet at Ostend in 1910, the year of the Brussels world's fair. The national club is to give $10,000 or $15,000, while the city of Ostend and the local club there are to furnish together not less than $10,000. If the schemes go through invitations will be sent to the world's leading drivers to compete in a series of speed trials.

National Grange Interested—A significant feature of the coming second annual national good roads convention to be held in Cleveland September 21, 22 and 23 is the keen interest being shown in the objects for which the convention is held by the members of the National Grange. Ex-Governor N. J. Bachelder of New Hampshire and the present master of the National Grange will be one of the speakers on September 21, his subject being "The National Grange and Good Roads." He will be followed by George S. Ladd, who will speak on "The New England Plan for Connecting Lines of Trunk Highways." On the following day T. C. Laylin, master of the Ohio State Grange, will speak on

"The Farmers' Interest in Road Improvement," and F. N. Godfrey, master of the New York State Grange, will tell of the work geing done by the New York grange members and the good roads legislation in the state.

Now Everyone Wants a Car—The city of Milwaukee has placed in use the 1910 model Peerless touring car for use of the board of public works and common council committees. The car is in demand so much that the board of public works has made application for a car for its exclusive use.

Special Freight Cars Built—Recognizing the need of a special conveyance for the immense amount of motor car traffic transportation, especially since the opening of the Pacific coast extension, the Chicago, Milwaukee and St. Paul Railway Co. has turned out fifty motor car type freight cars, with doubly large end and side doors, at its West Milwaukee shops. More will be built as necessary. The cars are loaded at the ends or sides with equal facility and all cramping, twisting and scratching is avoided.

Abuse a Privilege—By the hard work of the late Francis W. Cushman the motorists of Tacoma and vicinity were granted the right to drive their machines in the Mount Tacoma national reserve, a privilege not granted in any other government reserve in the United States. It is found that this privilege is being daily jeopardized by the reckless driving of a few people, their utter disregard of the rules and regulations within the reserve antagonizing the rangers and endangering the lives of others. The matter will be laid before the Tacoma Automobile Club by its secretary, Henry M. Prince.

Benjamin Secures Entries—C. Arthur Benjamin, who is promoting a program of motor car races for Saturday, at the New York state fair at Syracuse, N. Y., has secured a number of good entries from the field at Lowell, Mass. Barney Oldfield with his 120-horsepower Benz will be there. Efforts are being made to secure the Buick racing team. The Knox factory has promised a car. In addition to these there will be a Stoddard-Dayton, Fred K. Burnham and his Fiat, a Chalmers-Detroit, two Thomas cars and a National. The track at the state fair grounds is a mile in length. The surface has been treated with a dust-laying calcium chloride solution.

Remy Brassard—The Remy brassard is a unique trophy put up by the Remy magneto people, which carries with it a cash reward of $75 a week as long as it is held. Barney Oldfield now wears it, through his victory on the 25-mile free-for-all at Indianapolis.

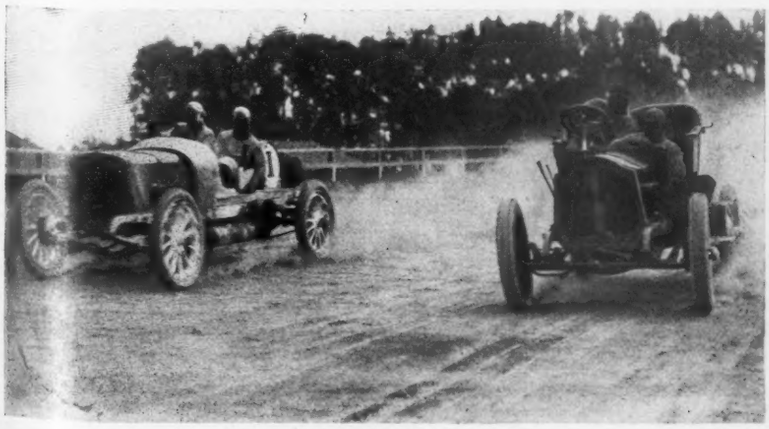
Farmers Will Help—At East Wenatchee, Wash., the farmers have succeeded in securing sufficient funds to begin the improvement of the roads leading to the Wenatchee river bridge from that side of the Columbia. One hundred days' work has been donated by the farmers and $600 in cash. The commissioners of Douglas county have agreed to furnish the material for two bridges which will be necessary. The improved roadway will lead from Wenatchee bridge to the Badger mountain ridge.

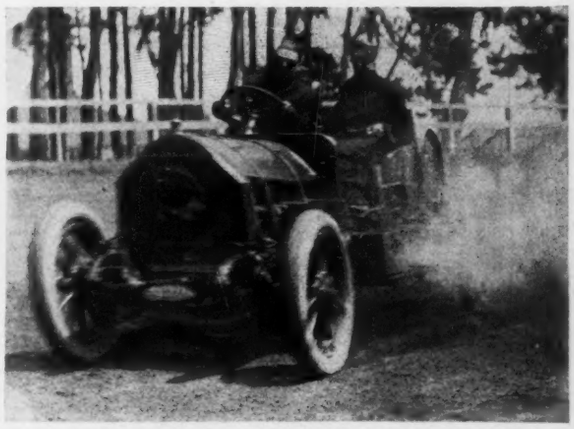
Plan Winter Tour Route—Twenty-four counties in Virginia, the Carolinas and Georgia are at work on a continuous improved highway to connect Washington, Richmond, Raleigh, Columbia, Augusta and Atlanta with Florida. Six counties have practically completed their links. The project is wholly coöperative, the chief purpose being to get a good motor route which can be traveled at all seasons of the year. The aim is to make an ideal winter tour, providing for the motorist the only long highway which can be negotiated with ease and pleasure from the Christmas holidays to spring. A few counties are building macadam roads; others are using gravel, and there will be 600 miles of sand-clay surfacing. This is an economical road to build and maintain in the territory traversed, and as the materials do not freeze or become muddy, it is claimed that it will always be in splendid condition. In addition to touching the state capitals, the route links together some noted winter tourist resorts—Pinehurst and Southern Pines, N. C.; Camden and Aiken, S. C., and Augusta, Ga. The famous Buffalo Lithia Springs in Virginia are also on the route. This route, known as the Capital highway, will try for the Glidden tour next year. Leonard Tufts, of Pinehurst, is president, and Frank Weldon, of Atlanta, is secretary.

Vicksburg Will Hold Meet—At a meeting of the Vicksburg Automobile Club, of Vicksburg, Miss., it was decided to hold a race meeting October 27-29. The club is at work on the details now. It has a beautiful site, easy of access, where it will build a mile track. President Taft, several members of his cabinet, thirty-five governors, 350 representatives of congress, and several hundred influential business men of St. Louis will be there October 28. The races will take place the day before and the day after Taft's visit. It will be the first motor meet held in Mississippi, and one of the few held in the south.

Finish Long Tour—A double transcontinental tour was completed a few days ago by Everett Mead and A. Newton Mead, of Greenwich, Conn., in their Packard, who covered 10,185 miles since May 19 last. At Los Angeles, Cal., they put one Fisk tire on a rear wheel and reached New York with the salt Pacific coast air of Los Angeles in it; not a puncture or blowout having been experienced. The transcontinental run was not as direct as it might have been by a long stretch, for a trip of 1,600 miles from Los Angeles to Seattle, over Mt. Shasta and the rough Siskiyen mountains was made before the car headed eastward.

Omaha Wants to Be Modern—The city council of Omaha, Neb., has decided to postpone the proposed submission of a $150,000 bond issue to purchase new fire apparatus and build new engine houses. This decision was reached by a realization of the fact that the rapid transformation of fire apparatus from the old style to the gasoline-propelled engines and trucks is such as threatens to make the present equipment of the city obsolete within a short time. Consequently the council will spend no more money on either old style apparatus or houses and has announced that it will look into the advisability of purchasing motor fire apparatus for the use of the city.





SAN FRANCISCO'S 300-MILE RACE—WINNING LOZIER PASSING PACKARD—THOMAS, WHICH FINISHED SECOND

MILWAUKEEAN'S IDEA OF A PRIVATE GARAGE

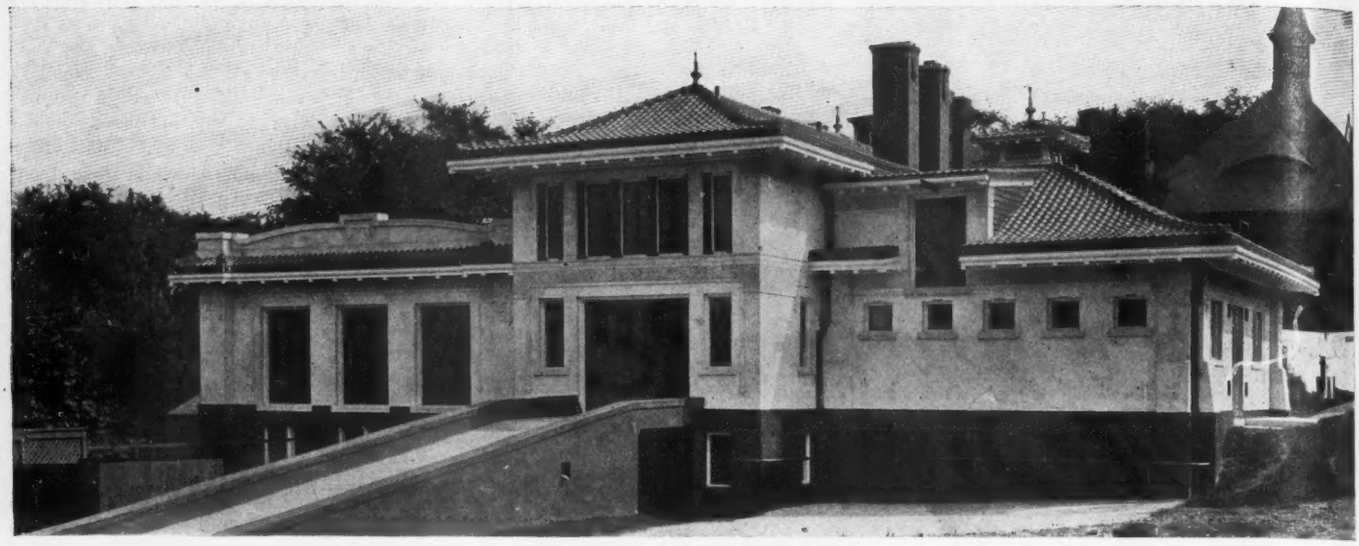


FIG. 1—NORRIS GARAGE WITH SOLID CEMENT DRIVEWAY

MILWAUKEE asserts it has one of the best and most up-to-date private garages in the northwest. Charles W. Norris, Nineteenth street and Grand avenue, having recently completed at an outlay of $16,500 a building for which is claimed this distinction both architecturally and from the standpoint of completeness. The garage is a fireproof construction and is a combination building to accommodate the several motor cars of the owner, the thoroughbred horses owned by the family, as well as furnishing space in the basement for fowls, etc. The garage is situated in the rear of the family residence which occupies half of the entire block. It is of reinforced concrete with a total length of 81 feet 5¾ inches and a width over all of 48 feet. It is three stories high, the basement being used for the cattle, the main floor divided into halves—one for the garage and the other for the horses, and the third floor containing a couple of rooms with closets and baths intended for chauffeur purposes.

As the illustration of the garage shows, the basement is in reality a first floor, in that half of its height is above the ground level. The main floor is reached by a solid cement incline and leads into a large central hall to the left of which is the garage and to the right the equine department. This floor has a 9-foot ceiling; the third floor extends over two-thirds of the building.

The main floor arrangement is well shown in the plans, Fig. 4, the main entrance E being 9½ feet wide and leading into the commodious wash room with a cement floor, this room being 14 feet 4 inches wide at the entrance and 18 feet 6 inches towards the opposite end. To the left of this is the garage, 30 feet 8 inches wide, and 40 feet long. It is reached through a doorway D 11 feet 1⅜ inches wide. In the garage is accommodation for three touring cars. The floor is of cement and the roof trussed with steel without central supports of any nature. The window door frames are the only parts that might burn in connection with this garage. This garage is well lighted, there being three windows in front, each 5½ feet wide, two on the rear wall of the

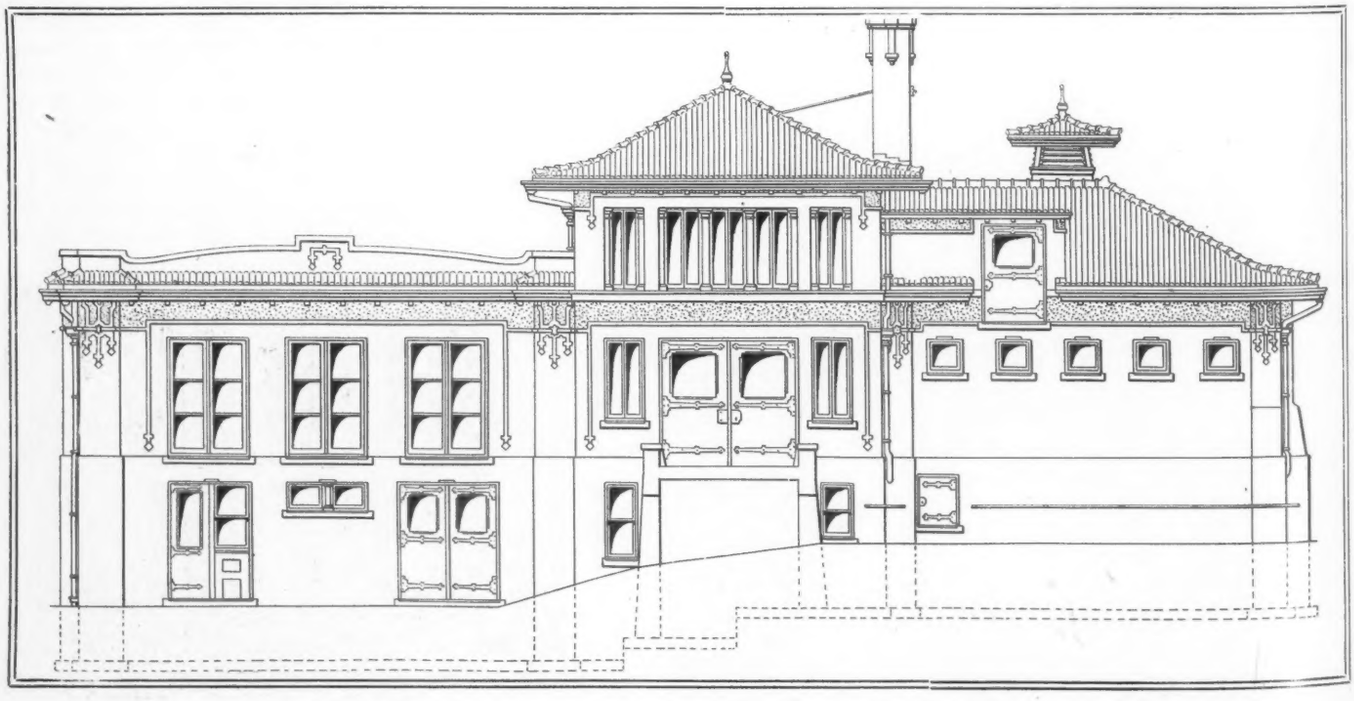


FIG. 2—FRONT ELEVATION OF THE NORRIS COMBINATION GARAGE AND STABLES

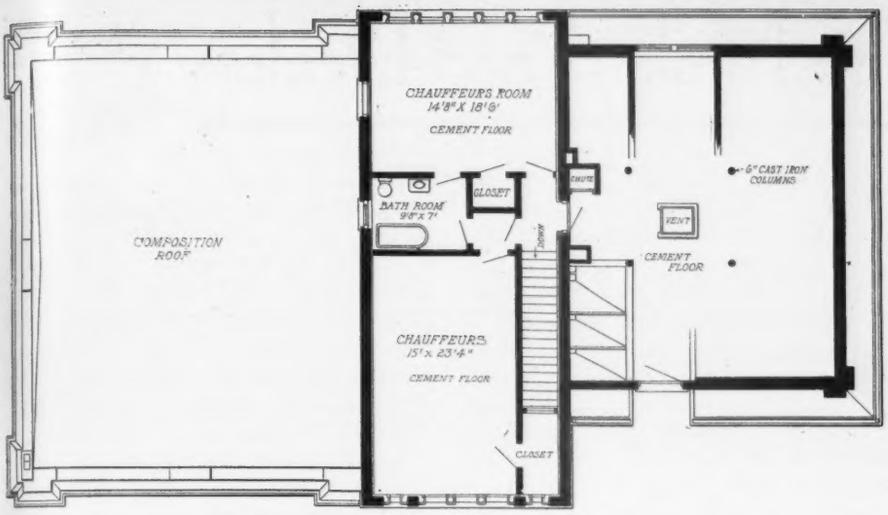


FIG. 3—CHAUFFEUR QUARTERS ON TOP FLOOR

same width, and three on the end, two 5 feet 6 inches in width, and a large central one 10 feet 4 inches wide. In the wash room, at the front entrance end, is a repair pit 6 feet long and 4 feet wide. It is walled on all sides with openings in the basement of it for the egress and ingress of the repairmen. The cement floors surrounding the pit are inclined several degrees. A water heater is also located in the washroom as well as several wash bowls for the horsemen. Between the walls of the washroom and garage are large compartments for robes and harnesses and between the washroom and the stable is a tool room. It undoubtedly would have been a better arrangement to have the harness and tool room interchanged. Both entrances to the washroom, E and E1, are fitted with sliding doors and by this double arrangement a car can enter from either side of the garage and in the grounds outside of the building the driveways are arranged to permit of complete circuit around them and through the building without obstruction.

A gasoline tank of 100 gallons capacity is built into the main incline cement driveway with the inlet tap in the center of the wall, permitting of oil wagons entering the arched driveway leaving their gasoline and passing on without turning. The gasoline supply pipes lead from tanks through the floor of the incline platform under the floor of the center section of the garage devoted to the washroom, and upwardly into this room where a feed pump is located.

The building is lighted by electricity and heated by steam. Conduits to carry supply pipes are brought from the family residence underground through a corner of the building whence they are distributed throughout it. Doors and window sills are of stone with brass thresholds. Hinged window seats are provided in the garage proper. Provision is made for the installation of a charging board for electric vehicles on one of the garage walls.

ANOMALY IN OMAHA

The motor speed situation in Omaha presents the anomaly of motorists demanding more stringent speed regulation than the city council is willing to impose. The Omaha Automobile Club, through its president, W. R. McKeen, Jr., presented to the council a draft of a proposed ordinance which embodied these provisions: The establishment of a municipal motor car bureau; the appointment of a motor car license inspector; the licensing of all owners and drivers; no license to be granted to anyone under 16 years of age. The council thought this too drastic and delayed action for several months until last month's motor casualty record of three deaths and fifteen injured revived the matter of more stringent regulation.

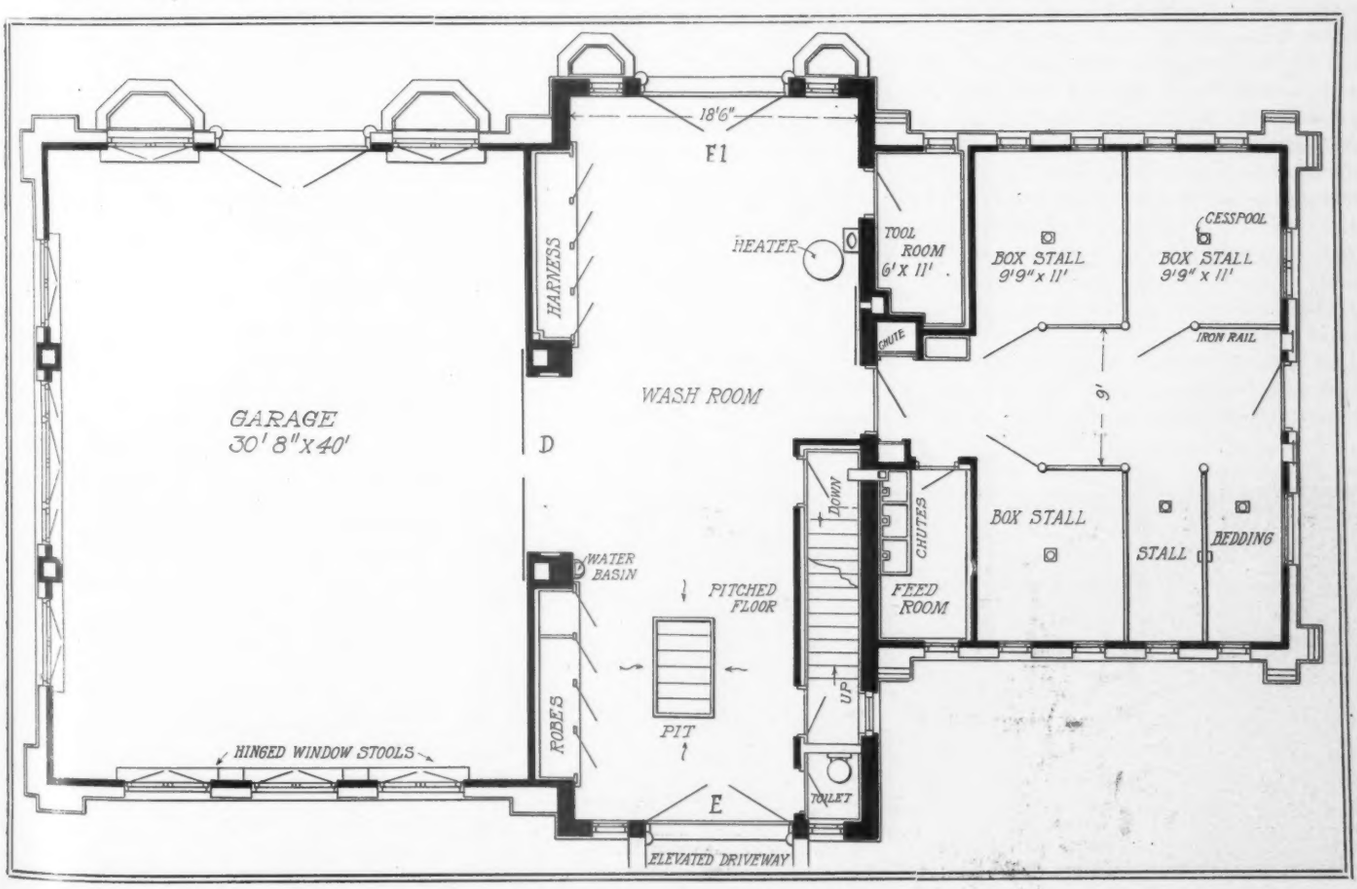


FIG. 4—MAIN FLOOR NORRIS GARAGE WITH STABLES TO RIGHT OF ENTRANCE

Among the Makers and Dealers

Making a New Car—The Flint Wagon Works, Flint, Mich., is building a four-cylinder roadster and touring car.

Orders Fifty Thomas Chassis—An order for fifty special Thomas chassis has been placed by the Webb Motor Fire Apparatus Co., of Vincennes, Ind. The chassis will be equipped with fire-fighting apparatus by the Vincennes company.

Will Make Self-Starter—A plant will be established in Indianapolis at once for the manufacture of a motor car starter, by the newly organized Ideal Auto Starter Co., which has been organized with $25,000 capitalization. Those interested in the company are W. K. Bellis, S. P. Woodard, A. L. Smith, R. T. Snapp and N. D. Woodard.

More Agencies in Minneapolis—Several announcements of new agencies are made in Minneapolis this week. The Marmon and Parry cars have been taken on by the Fawkes Auto Co., already agent for the American Traveler, Overland, Reo and Holsman. The Maxfield Auto Co. announces the Empire. Representatives of the Locomobile and American Simplex have been in the city the last week, and it is understood that these concerns will be represented in Minneapolis soon.

New Pence Building Opened—Announcement is made this week of the formal opening of the $200,000 building of the Pence Auto Co., Hennepin and Eighth streets, Minneapolis. In addition to the Buick line, which has been the standard of this company for years, the Oakland, Oldsmobile and Welch cars will be handled this year. The building, which is just now completed, is eight stories in height and is fitted up with every conceivable modern appliance for the quick and efficient handling of the motor business. Fast freight elevators take the incoming and outgoing cars to their proper departments; compressed air does many things around the building, while expensive and up-to-date machinery such as triphammers, drills, hydraulic presses, etc., are all used.

Pell Made Manager—V. W. Pell, of Alliance, O., will be manager of the Barnes Gear Co. to be located at Oswego, N. Y.

Exhibit at State Fair—A number of motor car exhibits were at the Ohio state fair during the week ending September 4. Among the exhibitors were the Studebaker, the Jewett, the McIntyre, the Firestone, the Zimmerman and others.

Cary Joins Federal Forces—J. D. Cary, who has traveled for the past 12 years in the south, representing the B. F. Goodrich Co., has entered the employ of the Federal Rubber Co., of Milwaukee, Wis. Mr. Cary will have charge of the latter company's interests in the south.

New Toledo Concern—The Blevins-Studebaker Automobile Co. has been organized at Toledo and will act as distributor for Toledo and northwestern Ohio for the complete line of Studebaker gasoline and electric pleasure cars and trucks and delivery vehicles. The new concern will open at the corner of Madison and Erie streets. H. W. Blevins, formerly with the Roberts-Toledo Auto Co., of Toledo, will become president and general manager of the concern.

Minneapolis' Latest—The Wilcox Motor Car Co., of Minneapolis, has recently been reorganized on a $1,000,000 basis and the coming season will make 3,000 cars and about 100 trucks. P. W. Strong has been engaged to handle the pleasure car end of the business and John H. Shields, present sales manager, will take care of the commercial vehicle end. C. H. Davidson, of Carrington, N. D., is the capitalist behind the enterprise, and John F. Wilcox, of Minneapolis, is also interested financially, while the president of the reorganized company is Harry E. Wilcox. It is understood the company will put out a medium-priced car following in a general way the design of the present Wilcox, which has a 16-inch clearance and a side-chain drive which has proven especially adaptable to the western roads in the adjacent territory.

Auburn Agency Incorporates—The Milwaukee Auburn agency, conducted by Harry F. Melius & Brothers, has been incorporated as the Auburn Motor Garage Co., capital stock $6,000. H. F. Melius, Charles G. Weinert and Jacob Melius, Jr., are the incorporators.

New Tire Concern—The Cleveland Puncture Proof Tire Co., recently organized with a capital of $20,000 by Columbus men, has located its office at 1355 North High street, Columbus. The tires, which are an invention of an Akron rubber man, are still manufactured in Akron, but a factory may be located in Columbus soon.

Adams Royal Sales Manager—After long service with the White Co. at Cleveland and latterly in charge of that company's Ohio sales department, Hobart M. Adams has been made general sales manager of the Royal Tourist Car Co., of Cleveland. The Royal company plans to nearly double the number of cars for the season just opening.

Even Manila is Interested—Clarence F. Samuelson, assistant fire chief of the department at Manila, P. I., was in Indianapolis a few days ago visiting the factory of the Howe Engine Co., manufacturer of motor fire apparatus. Chief Samuelson stated that the Manila department is to be equipped largely with motor apparatus in the very near future, after he places the result of his investigation along that line before the municipal board of Manila. The department has seventeen fire companies and of the 220 men employs 50 natives.

Firestone Expansion—What will be one of the largest tire factories in the world will soon be erected by the Firestone Tire and Rubber Co. in Akron, O., on a 15-acre tract of land. The erection of the new buildings shows, in a manner, the rapid expansion of the company, which, though one of the youngest in the industry, is one the largest devoted exclusively to the manufacture of tires. The Firestone company, founded by H. S. Firestone in 1900, had a modest beginning, but its growth has been rapid, so much so that factory additions have been necessary from time to time, finally making necessary the building of a new plant. Though the company was founded in 1900 it was not until one-story tiled structure in which there in its own factory, and then in a small the fall of 1902 that it began to make tires

ADDITION TO RAMBLER PLANT FOR LABORATORY, MOTOR TEST AND REPAIR DEPARTMENT

were employed but twenty men. At present the company has a four-story building and employs 600 men.

Adds the Maxwell—The Maxwell has been added to the agency conducted by the John Hessel Hardware Co., of Antigo, Wis.

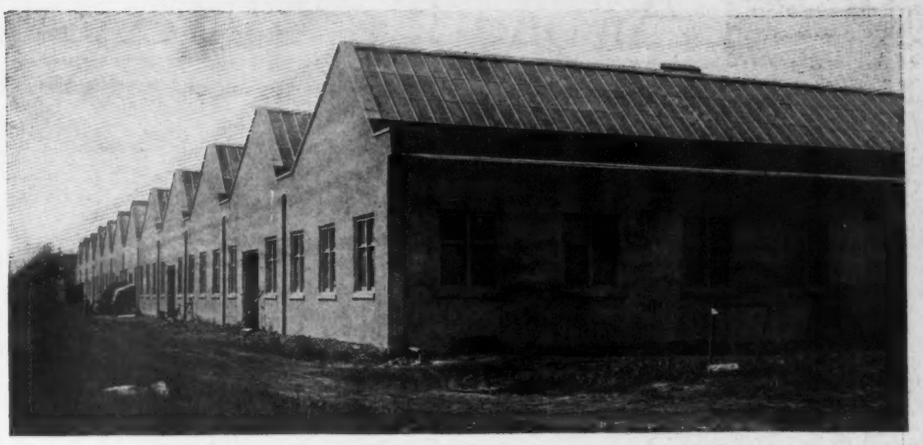
New Prest-O-Lite Branch—M. Moscowitz, representing the Prest-O-Lite company, is in Omaha arranging for the installation of the Omaha branch of the company in the new concrete building which has been erected at Eleventh and Seward streets. The entire middle west will be supplied from the Omaha plant.

Busy at Racine—A rush of orders for 1910 models from all parts of the country has made it necessary for the Mitchell Motor Car Co., of Racine, Wis., to adopt the 24-hour workday, and beginning this week three 8-hour shifts will be employed for at least 3 months. The company now has 900 men on its payroll and expects to add a third more.

New Continental Agencies—The Continental Caoutchouc Co., of New York, announces a new agency for eastern Wisconsin. The handling of Continental tires and demountable rims for this territory will be done by the Welch Brothers Motor Car Co.; corner Grand avenue and Seventh street, Milwaukee, Wis. The state of Nebraska has been assigned the Western Automobile Co., of Omaha.

Gilson and Bate Directors—J. W. Gilson, assistant secretary and sales agent of the Mitchell Motor Car Co., of Racine, Wis., and J. W. Bate, factory manager and designer, have been elected directors of the company under the amendment to the articles of incorporation increasing the number of directors from five to seven. The capital stock was recently increased from $1,000,000 to $2,000,000, mainly to carry the 1910 output of 6,000 cars and the additions to the plant.

Ride For Dealers—On one of the recent test runs which the H. H. Franklin Mfg. Co., Syracuse, N. Y., is daily giving to its dealers to show the Franklin 1910 cars under severe road conditions, there were men representing motor interests from the Atlantic to the Pacific. In the party were H. J. Banta, Spokane, Wash.; H. B. Grant, Seattle, Wash.; J. D. Moore, Boise City, Ida.; W. S. Jewell, New York city; Robert LaPort, Philadelphia, Pa., and Captain Barker of the United States army, located at Fort Leavenworth. The trip was down the Onondaga valley from Syracuse to Cardiff, up a sharp hill, one of the steepest in the state of New York and about a mile in length, to Lafayette, along the ridge overlooking Onondaga valley to Tully, from Tully to Preble, where a climb up Mount Taupin, a very steep ascent of 1,000 feet, was made. From this point the route turned to the east and went over a succession of hills varying in length and steepness, all of which were exceedingly rough and rugged until the valley of Sherburn was reached. From there the course turned to Utica, from which point a return run was made to Syracuse.



PORTION OF NEW ADDITION TO RAMBLER PLANT FOR NEW BODY AND ROAD-TESTING DEPARTMENT

Opens in Superior—The Superior Motor and Machine Works Co., of Superior, Wis., recently incorporated, has opened a garage and agency at Broadway and Banks street, in Superior, in addition to its machine and repair shops on the outskirts.

News From Wisconsin—The Oshkosh Motor Car Co. is the new name of the Krueger Auto Co., of Oshkosh, Wis., one of the pioneer agencies in northeastern Wisconsin. The agency and garage firm of Holloway & Patterson, at Monroe, Wis., has been dissolved, Richard Patterson retiring. Percy G. Holloway will continue the business. A large new garage building, costing $17,000, will be erected next spring by the Shawano Auto Co., of Shawano, Wis.

New Elkhart Maker in Elkhart—The Elkhart Carriage and Harness Mfg. Co., of Elkhart, has decided to enter the motor car field and has had expert engineers design a car which will have from 30 to 35 horsepower. The engine, clutch and transmission will be of the unit construction. The car will have 117-inch wheelbase and 34-inch wheels. It will have three styles of bodies, five-passenger touring, baby tonneau and roadster. The first lot of cars will be ready for exhibition purposes the early part of October.

Pope and Beckwith Resign—Manager Harold L. Pope and Superintendent E. G. Beckwith, formerly of the Pope Motor Car Co., and recently of the Overland Automobile Co., resigned their respective positions this week. This is the final windup of the Pope administration of the Toledo plant which is now owned by the Overland concern. Harold Pope has gone east where he will probably locate, and President J. N. Willys, of the Overland Co., will personally manage and direct the affairs of the Toledo plant. Harry Sheppler, of Toledo, who has been assistant superintendent, under Beckwith, will be made superintendent. The Overland company this week added 2 more acres of ground to its present site, giving it practically 18 acres.

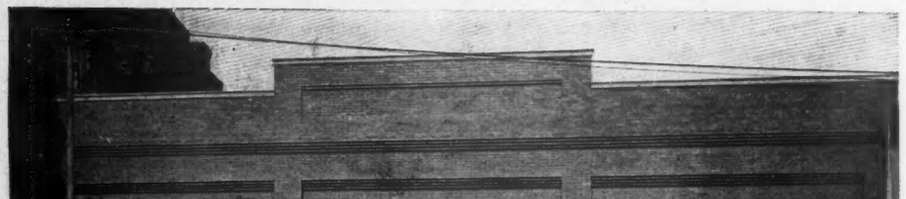
Peoria Orders Taxicabs—The Palace livery and boarding stable of Peoria, Ill., has decided to enter the taxicab field and has placed an order with the Sultan Motor Co., of New York.

More York Agencies—Among the new agencies established by the York Motor Car Co. are the Metropolitan Motor Car Co., of Seattle, Wash.; Lee Motor Car Co., of Oklahoma City, Okla., with an agency for the state, and Miller & Williams, Los Angeles, Cal., with an agency for Los Angeles and vicinity.

Olds to Build in Baltimore—E. L. Leinbach, manager of the Baltimore branch of the Olds Motor Works, announces that business for the past year has been so encouraging that the factory has decided to build for the branch a modern structure, to include showrooms, repair shops and a garage for the storage of the Oldsmobiles exclusively.

McMullen Handling Kurtz Magneto—The Hercules Electric Co., of Indianapolis, has completed negotiations whereby the sale of the Kurtz high-tension magnetos will be handled by Roger B. McMullen, of Chicago. In order to supply Mr. McMullen's requirements, the company is starting the third addition to its plant since January 1, and is at present negotiating for additional ground for further improvements in order to take care of deliveries promptly.

Dairy Inspectors Will Ride—Provided the city council will make an appropriation for the purpose, two motor car runabouts will be purchased by the Indianapolis board of health for the use of the dairy inspectors. An ordinance to appropriate $3,500 for the purpose has just been introduced in the council. The inspectors visit all dairies that supply milk to Indianapolis and the work has been difficult from lack of proper transportation. Recently a demonstration was made by the Nordyke & Marmon Co., 150 miles being covered in 1 day, with thirty inspections.



ELECTRIC GARAGE OF D. BARKALOW AT OMAHA

This is about three times as much work as was ever performed in 1 day before by the inspectors.

Garage For Greenfield—C. R. Patterson & Son, of Greenfield, Highland county, O., will soon begin the erection of a garage for that city.

Packard Branch Opens—The new Packard branch at the Britton garage on Allyn street is now in full swing and has been fitted out in Packard style. It is one of the largest salesrooms in the city. Charles Emblitin is branch manager.

Enlarges Facilities—At the annual meeting of the Northwestern Steel and Iron Co., of Eau Claire, Wis., last week, the directors decided to extend its facilities for producing gasoline engines and motors. It developed that the company has now reached a dividend-paying basis and that enough orders are on hand to necessitate full capacity operation for 6 months, at least.

Only One Marmon Model—The Nordyke & Marmon Co., Indianapolis, has decided to discontinue all of its models, except its model 32 for the season of 1910, and is preparing to build 500 cars of this type. In the 1910 model, the Marmon will be seen with a longer wheelbase, a new I-beam front axle with the steering connection behind the axle, a change in the radiator design to that of the full Mercedes type and several minor refinements.

Hokanson Reorganizes—The Hokanson Automobile Co., of Madison, Wis., has reorganized under the same name, increased its capital stock from $40,000 to $70,000, and announced plans that will give it a strong claim to the title of being one of the largest agencies in western Wisconsin at this time. The company will begin the manufacture of motor car tops and novelties and extend its system of branch garages and agencies throughout western and southern Wisconsin. Charles F. Spooner has been elected president; Emil Hokanson, vice-president; George P. Miller, secretary, and Rudolph Hokanson, treasurer and general manager.

Vestal Takes the Stevens—O. E. Vestal has secured the Pittsburg agency for the Stevens-Duryea and has opened up a fine garage in the new Rittenhouse building in North Highland avenue.

Now Youse & Daddow—E. S. Youse and S. H. Daddow have entered into partnership and the name of the firm has been changed from E. S. Youse to Youse & Daddow. The wholesale and retail business will be conducted at the same place and in the same manner as heretofore; and the manufacture of Perfect air couplings, Perfect drop brakes and Perfect Jr. air couplings will be continued.

Making the Gopher Truck—The Robinson-Loomis Motor Truck Co. is the name of a new concern located in Minneapolis for the manufacture of the Gopher truck. The new concern is capitalized at $50,000 and its plant will be located on Second avenue north and Seventh street. Besides making the Gopher truck the company will continue as agent for the Reliance trucks. T. F. Robinson is the president of the new concern; Frank P. Robinson vice-president and F. L. Loomis secretary. Mr. Loomis formerly was sales manager of the Reliance Motor Truck Co.

Keeping Tab on Cars—The garage owners of Denver, Col., have been requested to make a prompt report to the chief of police of every visiting or transient motorist. This rule was adopted by the fire and police board last week in order that a close check may be kept on the out-of-town machines for a brief period. What are known as transient permits and numbers are issued to the visitors free of charge, a deposit of $5 being required when the number is issued and refunded by the secretary of the board when the number is returned. The garage owners heard from so far all have evidenced interest in this ruling and have promised their support. The system is claimed to be of assistance in locating stolen cars.

Building New Place—The Love Garage Co., of Columbus, O., recently changed from a partnership to a corporation, will soon have a new home on North High street, near Fifth avenue. The building is partly completed and will be ready for occupancy by December.

More Room for Moline—The Moline Automobile Co., East Moline, Ill., has awarded a contract for the building of an additional factory, 100 by 125 feet and four stories high. This will give the Moline company 50,000 square feet additional floor space which will be used for chassis and body-assembling and warehouse.

Oil Company Growing—At a meeting of the board of directors of the American Oil Co. recently, it was voted on to double its capacity at the works and also to build a two-story brick office. This company has branches in Chicago, Detroit, Saginaw and Kalamazoo, and distributing points at Omaha, by the Western Auto Supply Co., and at St. Louis by the Phoenix Auto Supply Co.

Will Make Trucks—A new motor truck manufacturing concern is promised in Wisconsin by the incorporation of the Badger Auto Co., of Oshkosh, Wis., and the consequent absorption of the Termaat & Monahan Mfg. Co. The company is capitalized at $50,000 and will use the T. & M. plant. J. L. Monahan and J. D. Termaat are among the incorporators, together with P. L. Fahrney, of Chicago, and M. L. Cottrill, of Oshkosh. The company will conduct agencies and operate a garage and livery.

Firestone Has Election—At the regular meeting of the Firestone Tire and Rubber Co. the following officers were elected: H. S. Firestone, president and general manager; Will Christy, vice-president; S. G. Carkhuff, secretary, and L. E. Sisler, treasurer. The annual report showed an increase in sales of about 50 per cent over the previous fiscal year. In order to keep pace with its sales the Firestone company is planning to erect an immense tire plant on land purchased a few days ago for that purpose.

Baltimore Tests Motor Engines—Following up the recommendation of Chief Horton, of the Baltimore, Md., fire department, for the purchase of motor car fire engines for service in the annex and suburbs of the city, a motor car fire engine owned by the American Motor Fire Apparatus Co., of Pittsburg, was given a test last week. Four streams from ⅞-inch nozzles caused an estimated pressure of 54 pounds to the square inch, and the engine drove the water through the nozzles at a pressure of 124 pounds. In addition to favoring motor car fire engines for the suburban and annex service, the chief has

made recommendations for the purchase of motor car hose carriages for use in the center of the city.

Frisby With M. & W.—A recent addition to the staff of Morgan & Wright's Chicago branch is J. P. Frisby, late of the Pennsylvania company.

Koto Resigns—Alfred S. Koto, assistant manager of the Warner Instrument Co., of Beloit, Wis., has resigned, to take effect September 15, and James C. Howell, of Cornwall-on-the-Hudson, N. Y., will succeed him.

Baltimore City Garage—The garage in which the new runabout to be used by Marshal of Police Farnan is to be quartered has been completed. It is located in the rear of the central police station, Saratoga street, near Charles. Chauffeur Ulrich, who was formerly one of the motor car patrol drivers, will be the marshal's helmsman.

Change in Knox Agency—The Knox agency in Indianapolis, which has been held by John A. Boyd, has been taken over by the Conduitt Automobile Co. and the sales room is to be moved from 215 North Delaware street to 332-334 North Delaware street. Those interested in the company besides Boyd are William A. Conduitt and Andrew J. Cochran. Later the agency for a lower-priced car will also be taken.

New Speedwell Agencies—The following Speedwell agencies have been appointed: Henry Dryfoos, Jr., Hazleton, Pa. H. F. Van Cleave, 4209 Morgan street, St. Louis, Mo. Motor Car Sales Co., San Antonio, Texas. J. W. Goldsmith Jr. & Co., 790 Peachtreet street, Atlanta, Ga. Budd M. Robinson, Joplin, Mo. Hollis-Rand Co., Rochester, N. Y. Thompson-Cuhtbert Co., Portland, Ore. Newbold Speedwell Co., Washington, D. C.

Has an Informal Opening—The Studebaker-E-M-F agency in Columbus, O., under the management of A. J. Pray, was informally opened at the new building on North Fourth street the first part of this week. While the interior of the building is not completed, a large line of cars has been received and many people have visited the place. One of the features will be a lounging and reading room. A formal opening will be held in about 2 weeks. The establishment will be a sales agency entirely.

Will Open Remy Branches—The Remy Electric Co., of Anderson, Ind., manufacturer of the Remy mechanical ignition system, has completed plans for the establishment of branch selling offices at Kansas City and San Francisco. Although locations have not been secured at this time it is expected that a corps of experts will be in the two western motor marts by January 1, 1910. Edward F. Willett who has been connected with the New York selling office of the Remy company will be put in charge of the new branch at San Francisco and Ross E. Luellen will be sent from the home office to manage the Kansas City office.

Operates Electric Garage—A brick and steel structure is the new home of Denise Barkalow's electric garage in Omaha. It is the latest of Omaha's new garages. It is 66 by 125 feet. The electric garage is the home of the Baker, Detroit and Rauch & Lang electrics and the Packard.

Wilcox in Charge—The Empire Motor Car Co., of Syracuse, has been organized as the distributing agency for eighteen counties of central New York, with headquarters in Syracuse. Showrooms have been opened at 244 West Genesee street as temporary quarters only, with George D. Wilcox, who took the Regal Plugger from New York to San Francisco, in charge.

First Gasoline Switch Engine—The first gasoline switch engine in the world has been built at the McKeen motor car shops in Omaha. It is for an eastern tunnel line and will haul trains through the tunnel, doing away with the smoke and gas of steam and the complications of electric power. This is only one of the lines turned out by the new McKeen shops. Its products now consist of passenger motor cars, switch engines and weed burners.

Making Timkens in England—The Timken Roller Bearing Co., of Canton, O., has made arrangements with Electric and Ordnance Accessories Co., of Birmingham, England, to manufacture Timken roller bearings in England. The Birmingham firm is controlled by Vickers Sons & Maxim, Ltd., of London, England. It will furnish Timken bearings to the trade, not only in Great Britain, but in France, Switzerland, Italy and Germany as well. The Wolseley Motor Car Co., Ltd., of Birmingham, England, has already adopted them after testing them out thoroughly on English roads and under existing conditions there.

Capital For Lamp Department—The John W. Brown Mfg. Co., of Columbus, O., has increased its capital stock to provide additional machinery in the lamp department.

Rooklidge a Maxwellite—H. E. Rooklidge, formerly president of the Missouri Valley Motor Car Co., of Kansas City, has taken the position of manager of the Maxwell-Briscoe branch in Kansas City, succeeding Carl J. Simons, who will be a field agent of the same company.

Minneapolis Has Taxicabs—The first taxicabs have appeared on the streets of Minneapolis, being Ford machines of the McAllister & Newgord Co. Fifteen of these machines have been ordered and will be followed shortly by twenty-five Buick taxis to be operated by the Pence Auto Co.

Erecting Winton Branch in Seattle—Contracts have been let by the Winton Motor Carriage Co. for the erection of a new garage at Pike street and Terry avenue. The building, which is to be a six-story structure, will be 80 by 120 feet, and is to be ready for occupancy by January 1. The Winton company is now located at 715 East Pine street.

Has a Varied Line—The United States Carriage Co., of Columbus, O., has decided to include touring cars, ambulances, hearses and other motor vehicles in its output during the coming season. The company has decided to manufacture a four-cylinder gasoline engine with which the motor cars will be equipped. The new cars will be on the market shortly before January 1.

PLANS FOR NEW WINTON BRANCH IN SEATTLE

CARE OWNERS SHOULD GIVE THEIR TIRES

THE pneumatic tire will wear out under the most favorable conditions and treatment. But there are, however, many causes which tend to reduce its maximum wearing capacity. The most careful driver is liable at all times to puncture a tire, but there is no excuse for driving on the tire after the puncture has been discovered. The puncture can be repaired, but the harm done from riding on the deflated tire cannot be remedied.

A cut may be made in the outer envelope by contact with a sharp object which cuts into the tire, but not through it. The cut may appear insignificant and, as it appears at first, is often really unimportant. If it remained the same size and depth as when it happened it would not matter much. But consider what follows. As one rides afterward on a neglected cut little by little grit and dirt work their way into the incision, opening and aggravating it in the same way as they would a wound in human flesh. Moisture also works its way in, and if the rubber has been cut through to the fabric a weak spot develops which will tear or break later under an unusually severe strain. All cuts should be treated when the car returns from a run. There is a special paste for filling cuts which if used will add to the life of a tire. Cuts are easily treated when they first occur, and a little attention to points like these makes a great difference in tire cost.

Facts About Blowouts

It is not at all uncommon for a blowout to occur while driving along at a moderate rate of speed on a perfectly smooth pavement, and a burst does not necessarily take place at the precise moment when the object comes in contact with the tire. The car strikes an object and a tremendous strain is put on the fabric. It does not give way. It nearly bursts—but not quite. The fabic is weakened and near the bursting point and the return is made to the garage without any signs of the damage done. Next morning the car is taken out. The tire is weak from the blow it received the day before. But it holds for a time. Suddenly the burst occurs. The driver thinks it is the fault of the tire because he is driving on an absolutely smooth surface. Not so! The blow of the day before did the damage.

Two of the most important points to be remembered with regard to tires is to see that in the first place the load which is placed upon them is not excessive and, secondly, that they are at all times properly inflated. Up to a few years ago too little attention was given by the manufacturers to the proper tire equipment of their cars, and consequently many cars were turned out with tires which were, later on, found too small to stand up for any reasonable length of time. In order to fit larger tires it was necessary to have the felloes of the wheels built up and new rims fitted. To overcome this many of the tire manufacturers now make a number of special sizes. Practical experience and scientific formula combined give an exact size of tire for a car, and a line to the manufacturer of the tire used will bring a table containing information relative to the load-carrying capacity of their tires and the necessary inflation.

SPECIAL SIZE TIRES AND RIMS THEY WILL FIT

28x3¼	fits	28x3	rim
31x3½	fits	30x3	rim
31x4	fits	30x3½	rim
33x4	fits	32x3½	rim
35x4	fits	34x3½	rim
35x4½	fits	34x4	rim
35x5	fits	34x4½	rim
36x5½	fits	34x4½	rim
37x4	fits	36x3½	rim
37x5	fits	36x4½	rim
38x5½	fits	36x4½	rim
39x5	fits	38x4½	rim
41x5	fits	40x4½	rim

Inflation of Tires

As to the proper amount of inflation, all makers join in the cry, "Pump up your tires!" A tire is not properly inflated unless it stands up full and round under its load. If it shows a depression when the car is standing, then in use the fabric must undergo terrific distortion, bending, twisting and grinding. One tire concern does not believe in the rule a tire should stand up round under the load is the safest, and most emphaticaly advises the use of a gauge, stating that every tire is made to contain a specific air pressure. If a car requires 75 pounds per tire and the owner only uses 50 pounds pressure, he is giving the tire one-third less backbone than it needs and deliberately reducing its life and wearing ability more than one-third. He cannot gauge proper tire inflation by feeling a tire, nor by kicking it, nor by seeing how much it is flattened on the ground. It is not enough to know that the tire is partially inflated, because it is impossible to get the best results unless the tire is properly inflated to the exact pressure required. There are pressure testers on the market which gauge inflation accurately and instantly. There is nothing to do but remove the valve cap and press the tester firmly over the valve, and a pin forces the valve plunger down, admitting the air to the gauge, which shows the pressure. If the tires are not standing up as they should the owner should consult the tire manufacturer, secure a weight and pressure table, then weigh his car. If the tires are overloaded and the owner is unable to get a special size that will give satisfaction he should fit the proper rims and tires at once. The first cost will be less than the constant bill of expense which he cannot avoid so long as the tires are too small for the weight they have to carry. Test the tires often. If the owner inflates them properly in the beginning yet finds the pressure gradually decreasing, he should examine the valves and fit new plungers, seeing that they are air-tight.

How to Weigh a Car

To obtain the exact weight of a car it is necessary to use a platform scale, that is, any scale that has a platform sufficiently large to take the entire weight of the car; then proceed in this way: First weigh the whole car. Next weigh the back of the car. To do this the middle of the car should be over the edge of the platform. The front of the car is weighed in the same way. If this has been carefully done the last two weights taken, when added togther, should give within 20 pounds the total weight of the car.

Commercial Brevities

At present only three firms are entered for the French motor plowing match to be held in conjunction with the Amiens agricultural motor exhibition at the end of this month. The firms are the Compagnie Internationale des Machines Agricoles, handling the International Harvester Co.'s products; Vermond & Quellenec, and the Societe Generale de Moto Culture. The competition is intended to show the most suitable type of motor-driven plow by putting them to work under conditions that are as near as possible a reproduction of those pertaining on a farm. On each of the days that the test lasts the motor plows must turn over, under predetermined conditions, not less than 2½ acres of land. Fuel, water and oil required for the test must be taken in advance to the field to be worked and placed in suitable vessels, which will be sealed by a member of the committee. Tanks can only be filled from these sealed cans under the supervision of the committee, the plugs being sealed up again as soon as the supply has been taken. As economy of working is the basis on which the awards will be made, these precautions are necessary. Work will begin at 7:30 a. m. on each of the 2 days, will be interrupted for 1½ hours for lunch and carried on until 4 o'clock. While in the field no one but the operators will be allowed to touch the motor plows and no fuel can be taken out to them except under the control of a member of the committee.

In no other line of business has the motor truck and delivery wagon made so much progress in Indianapolis as among wholesale concerns. At least 50 per cent of the wholesale grocery, drug, paper, dry goods and cigar concerns are now utilizing motor vehicles for city delivery work. The Mooney-Mueller Drug Co. and the A. Kiefer Drug Co. as well as Eli Lilly & Co., manufacturing chemists. do all their city delivering with motor vehicles.

Brief Business Announcements

San Antonio, Tex.—The Brownlee-Wood Co. has been appointed agent for the Babcock.

Watertown, Wis.—Edward G. Buroff will occupy his new garage and salesrooms at Main and North Fifth streets about October 1.

Louisville, Ky.—The Atlas Machine Co. has been incorporated with a capital stock of $40,000, and is to deal in motor cars. It is to handle the Empire.

Des Moines, Iowa—The new garage of the Ideal Auto Co., at 508-510 Seventh street, is completed and the company is settled in its new home.

Detroit, Mich.—The Packard Motor Car Co. has awarded contracts for the erection of a new building, 508 by 60 feet, at East Grand boulevard and the belt line, where the company's plant is located.

Berlin, Wis.—W. E. Schaefer has been appointed district agent for the Corbin. This line has not had adequate representation in Wisconsin heretofore and several other agencies will be announced shortly.

Harrisburg, Pa.—The Cox Automobile Co., which is the local agent for the Stoddard-Dayton, expects to be located in its new home at 23 South Fourth street before the end of the week. The company intends to carry a line of sundries and supplies.

Minneapolis, Minn.—The Northwest Cadillac Co. has leased space at 418-429 Fourth street and is to have a salesroom and showroom in operation by the middle of the month. The present home of the company on Fifth street is to be devoted to garage purposes.

San Antonio, Tex.—A new company has been organized by C. H. Dean, who is to act as president of the concern, and will open a garage at 234 Flores street. The company is to represent the Winton and Regal cars. Frank B. Grice has been appointed local agent for the American.

Cleveland, O.—O. L. Weaver, who has been connected with the Goodyear Rubber and Tire Co. for several years as manager of the Cleveland branch, has resigned from that company. He intends, however, to remain in this city and will act as agent in eastern Ohio, western Pennsylvania and West Virginia for the Overland.

Milwaukee, Wis.—The Sternberg Mfg. Co., Weil and Burleigh streets, which entered the motor truck manufacturing field about 8 months ago, is building a new plant. A site has been purchased at West Allis, the manufacturing suburb of Milwaukee, and contracts have been awarded for the erection of a large factory, to be 200 by 350 feet, of reinforced concrete construction, with a capacity of 200 trucks a year. Three hundred men will be employed. The present capacity is only twenty-five a year.

Harrisburg, Pa.—The Motor Supplies Co., of Philadelphia, has been incorporated with a capital stock of $20,000.

Cleveland, O.—The Auto Sales Co., which has been acting as agent for the Hupmobile, has added the Velie to its line.

Cleveland, O.—A change in the local field is the acquirement by the Crawford Motor Co. of the agency for the Rider-Lewis car. The company will continue to represent the Jackson as well.

Lexington, Ky.—The Lexington Motor Car Co. has filed articles increasing its capital stock from $50,000 to $100,000, which is to be devoted to the development of the company's business.

Janesville, Wis.—The Owen Thomas Motor Car Co., maker of the O.-T. Six, is making exhaustive tests of the first model preparatory to starting active work on its 1910 line. Two cars are now out.

Pontiac, Mich.—Work has been rushed on the addition to the plant of the Rapid Motor Vehicle Co., and plans are under way for the addition of a third story. The building is to be completed by December 1 and is to be used as an assembling room and machine shop.

Paterson, N. J.—The Cataract Motor Co., which was recently organized, has filed articles of incorporation with a capital stock of $350,000. Among those interested are L. A. Piaget, W. H. Sherman, Foster W. Freeman and George E. Hannah. The company has two different sites in view for the erection of a plant and is to make a specialty of engines.

Harrisburg, Pa.—The Pittsburg Taxicab Co. has announced the increase of its capital from $100,000 to $200,000.

San Francisco, Cal.—Canning & Vinton have opened a salesroom for second-hand cars on Golden Gate avenue, near Larkin.

Cleveland, O.—The D. E. Foote Rubber Co. has installed its tire repair department on the second floor of its office building on Euclid avenue.

Milwaukee, Wis.—The Battery Light and Power Co. has filed an amendment to its articles of incorporation decreasing the capital stock from $25,000 to $15,000.

Cleveland, O.—J. F. Strater, of the Hoffecker Speedometer Co., has opened a factory branch in this city. The new office is to be located in the Euclid Point building.

Milwaukee, Wis.—The Mueller Motor Car Co. has been incorporated by Milwaukee capital. H. C. Mueller, Charles J. Hirsch and Peter Barth appear as incorporators. The capital stock is $20,000.

Wilkes-Barre, Pa.—The Sheldon Axle Co., which recently started work on the erection of a new building, is shortly to go into the manufacture of motor cars, including pleasure cars and commercial vehicles.

Tecumseh, Neb.—A new garage is to be established here by Warren Fletcher, of Yates City, Ill., and M. Erickson, of the same place. A site has already been purchased, and Mr. Erickson is to undertake the management of the garage.

Five Rivers, Wis.—The Wisconsin Auto Supply Co. has doubled its capital stock. Julius Schwantes has been appointed general manager. The company will build gasoline motors on a large scale, incidentally doing an agency business. It now has the Manitowoc county agency for the Cadillac.

South Bend, Ind.—The Woods Electric and Mfg. Co. held its annual meeting last week and elected the following officers: President, W. E. Wood; vice president, D. M. Wood; secretary, W. G. Crabill; treasurer, C. H. Harper. The company recently increased its capital stock to $50,000 and has just perfected a gasoline motor.

Kansas City, Mo.—The H. H. Franklin Mfg. Co. has just signed a contract with the Franklin Motor Car Co. whereby the latter concern is to act as agent in this city for the Franklin car during the coming season. The Midland Motor Car Co., which is now located at 1408-1410 Walnut street, expects to be settled in its new plant at 1523-1525 Grand avenue by October 1.

Chicago—Bridge Web Tire Co. of Illinois, of Chicago, capital stock $2,500, to engage in the manufacture of motor car tires. Incorporators, F. H. Drury, S. Lewis and E. Werre.

New York—Fox-Stiefel Co., capital stock $130,000, to manufacture apparel for motorists. Incorporators, T. F. A. Gibney, H. A. Heroid and H. S. Wickes.

Worcester, Mass.—Franklin Square Garage Co., capital stock $35,000, to engage in a general motor car business. Archibald R. Davis is to be president and treasurer.

Chicago—Chicago Automobile Self-Starting Appliance Co., capital stock $70,000, to manufacture motor cars and appliances. Incorporator, Edward J. Kelly.

Denver, Colo.—Pueblo Auto Goods Co., capital stock $10,000. Incorporators, F. H. Bullen, R. E. Cruzen and L. G. Walker.

New York—Automobile Rim Securities Co., capital stock $150,000, to manufacture motor car parts. Incorporators, H. W. Goddard, R. H. Gay and N. Weck.

Flemington, N. J.—Flemington Garage Co., capital stock $25,000, to operate and maintain a garage. Incorporators, J. R. Hall, H. J. Rodenburg and J. G. Lawshe.

Elizabeth, N. J.—Elizabeth Taxicab Co., capital stock $100,000, to manufacture motor cars, etc. Incorporators, W. H. Cole, F. V. Price, Jr.

The Motor Car Repair Shop

OVERHAULING BALL BEARINGS

IN no division of the practical arts is the rule, "Whatever is worth doing at all is worth doing well," more appreciated than in mechanics; and there is nothing more sensitive to care or neglect than an intricate piece of machinery; the amount of neglect or abuse that a mechanism will endure is generally proportioned to its simplicity or intricacy. A ball bearing is a very simple and efficient part of motor-car mechanism that requires so little attention that the general tendency is to neglect it entirely, hence the disposition in modern practice of employing non-adjustable ball bearings. However, adjustable ball bearings of the cup-and-cone type are extensively used at the present time and give good service as long as proper adjustment and lubrication are maintained. There comes a time in the life of an adjustable ball bearing when proper adjustment is impossible to maintain, or when the balls fail to stand up as long as formerly. These are symptoms of distress and suggest that an overhauling is necessary. Overhauling a ball bearing does not consist of merely replacing a few broken or damaged balls, but often means the fitting of new cups and cones, which is an arduous task, and no job for the amateur.

When the above mentioned symptoms of distress are apparent, an examination of the cups and cones will invariably expose the grooves G, Fig. 2. Now it is obvious that when grooves of this sort have been worn into a bearing, if it were possible to take up the lost motion, the balls would ride on the sharp edges P of the grooves, Fig. 3, which would not only break down quickly, but would be very detrimental to the balls as long as they remained sharp; on the other hand, if the bearings were allowed to remain loose, the case-hardened crust having been penetrated, the wear will rapidly increase, and the continual side thrusts tending to throw the balls upon the edges of the grooves will shorten the life of the balls considerably.

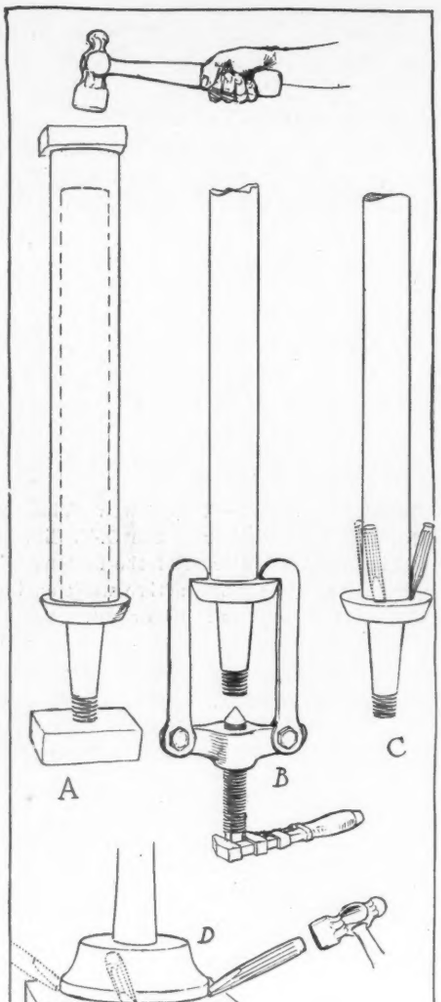


FIG. 1

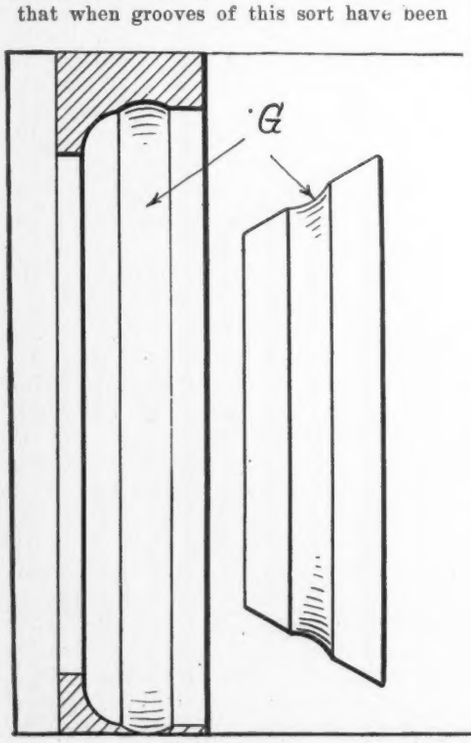


FIG. 2

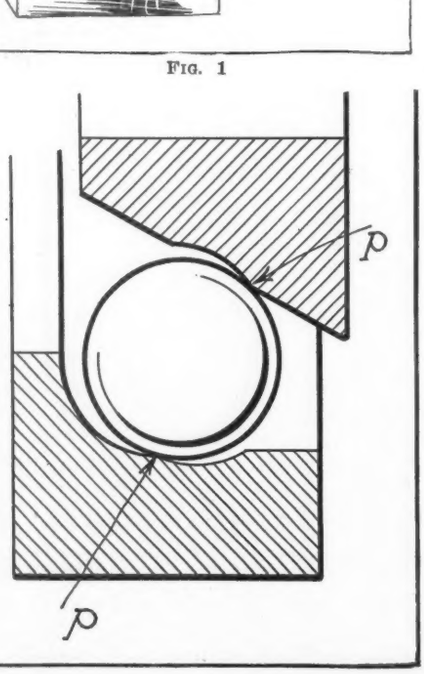


FIG. 3

Replacing Cups and Cones

When it is necessary to replace a set of cones and cups, the old ones must first be removed. This is not always an easy task and may require the use of special tools; but most cups and cones can be removed with a hammer and chisel or drift, if a little knowledge of their use is known. In Fig. 1 three methods of removing a cone from the end of a transverse driving-shaft are shown. A illustrates a simple and effective way of driving off a cone by slipping a piece of pipe or tubing over the long end of the shaft so it rests against the back of the cone, then by striking the pipe a sharp blow or two the cone will be dislodged. Care should be exercised in operations of this kind so that the thread on the end of the shaft is not burred up or spoiled. It is advisable in such cases to rest the threaded end E on a block of wood, or to interpose a block of hard wood or a piece of lead or copper between this end and the anvil, if an anvil or some such solid rest is employed.

The easiest method of removing a cone of this kind is illustrated at B by means of an ordinary wheel-puller. However, when neither a pipe nor a wheel-puller is obtainable, the job may be done with a hammer and chisel, as designated in example C, the dotted lines showing how the chisel should be moved around the cone so that it will be driven off evenly. In cases where it is impossible to get behind the cone they must be started, as shown in example D, by using a hammer and a sharp chisel whose edge is a trifle soft; and as in example C, the chisel must be moved around the circumference of the cone. Cups can generally be removed from wheels with a hammer and drift by applying the force from the opposite side of the hub. A cup may be removed from an end bearing of a rear-axle housing by three or four holes which are usually found which will admit a drift to the back of the cup. These are often filled with paint or mud, but can generally be located without a great deal of trouble.